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MONDAY, FEBRUARY 12, 1979

PART III

DEPARTMENT OF TRANSPORTATION

Coast Guard

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TANK VESSELS OF 10,000 GROSS TONS OR MORE AND TANK VESSELS OF 20,000 DWT OR MORE CARRYING OIL IN BULK

Proposed Design, Equipment, Operating, and Personnel Standards, Improved Steering Gear Standards and Inert Gas and Deck Foam Systems

[4910-14-M]

DEPARTMENT OF TRANSPORTATION

Coast Guard

[33 CFR Part 157]

[CGD 77-058b]

TANK VESSELS OF 20,000 DWT OR MORE CARRYING OIL IN BULK

Proposed Design, Equipment, Operating, and Personnel Standards.

AGENCY: Coast Guard, DOT.

ACTION: Proposed rules; withdrawal of previous proposal.

SUMMARY: The Coast Guard proposes to add to the rules for tank vessels carrying oil in bulk, standards for segregated ballast tanks, dedicated clean ballast tanks, and crude oil washing systems, and to withdraw a previous proposal (42 FR 24868) for double bottoms and segregated ballast tanks for certain tank vessels. The proposed standards are essentially the same as the standards and recommendations contained in the *Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973* which are reflected in the Port and Tanker Safety Act of 1978. Adoption of the proposal would reduce the probability of spillage of oil into the navigable waters of the United States from vessel accidents, reduce the amount of operational discharges to the oceans by deballasting and tank cleaning, and contribute to the conservation of oil.

DATES: 1. Written comments must be received on or before April 16, 1979. 2. The hearings will be held on March 21, 1979 and on March 28, 1979.

ADDRESSES: Written comments should be submitted to Commandant (G-CMC/81) (CGD 77-058b), U.S. Coast Guard, Washington, D.C. 20590. Comments will be available for examination at the Marine Safety Council (G-CMC/81), Room 8117, Department of Transportation, Nassif Building, 400 Seventh Street, SW., Washington, D.C. 20590. A copy of the Regulatory Analysis and Evironmental Impact Statement relating to this amendment, the *Protocol of 1978 Relating to the International Convention for the Safety of LIfe at Sea, 1974* and the *Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973* (MARPOL Protocol) are also available for examintation at this address. The Coast Guard will hold 2 public hearings concerning this proposal. The first will be held on March 21, 1979, beginning at 9:30 a.m., in Room 2230, 400 7th Street, SW., Washington, DC 20590. The second will be held on March 28, 1979, beginning at 9:30 a.m., in the Jack Tar Hotel, Garden Room, Van Ness at Geary, San Francisco, CA 94101.

FOR FURTHER INFORMATION CONTACT:

Commander George F. Ireland, Merchant Marine Technical Division (G-MMT-1/82), Room 8207, U.S. Coast Guard, Nassif Building, 400 Seventh Street, SW., Washington, D.C. 20590 (202-426-4431).

SUPPLEMENTARY INFORMATION: 1: Interested persons are invited to participate in this proposed rulemaking by submitting written data, views, or arguments. Persons submitting comments should include their names and addresses, identify this notice (CGD 77-058b) and the specific section of the proposed regulations to which their comments apply, and give reasons for the comments. The regulations may be changed in the light of comments received. All comments received before expiration of the comment period will be considered before final action is taken on these proposed regulations.

2. Interested persons are invited to attend the hearings and present oral or written statements on these proposed regulations. It is requested that anyone desiring to make oral comments at a public hearing notify Captain Philip J. Danahy at the address listed under ADDRESSES, at least 10 days before the scheduled date of the hearing and specify the approximate length of time needed for the presentation. It is urged that a written summary or copy of the oral presentation be included with the notification.

DRAFTING INFORMATION

The principal persons involved in drafting this proposal are: Commander George F. Ireland, Project Manager, Office of Merchant Marine Safety, and Mr. Stanley Colby, Project Attorney, Office of Chief Counsel.

BACKGROUND

During the Winter of 1976/1977 several tanker casualties occurred in or near U.S. waters which demonstrated the need for a global effort to improve both the levels of safety and degree of pollution prevention from oil tankers. This series of casualties resulted in great public concern within the United States over the risks associated with the marine transportation of oil. Demands for the Federal government to take additional steps to improve tanker safety and pollution prevention were evident.

Both the Executive Branch of the Federal govervent and the Congress responded to these demands. An Interagency Oil Pollution Task Force was established to review the problem and make recommendations. As a result, on March 17, 1977, President Carter announced a series of desired Federal government actions to deal with the problem of marine oil pollution caused by oil tankers.

These Presidential Initiatives included a diverse but interrelated group of measures designed to reduce the risks associated with the marine transportation of oil. These measures, both international and domestic in nature and scope, aimed toward achieving a number of objectives, including reform of ship construction and equipment standards for all U.S. and foreign tankers over 20,000 deadweight tons entering U.S. ports.

Specifically, the Secretary of Transportation was directed to develop new rules within 60 days which would include:

- Double bottoms on all new tankers;
- Segregated ballast on all tankers;
- Inert gas systems on all tankers;
- Backup radar and collision avoidance equipment on all tankers;
- Improved emergency steering standards for all tankers;
- Where technological improvements and alternatives could be shown to achieve the same degree of protection against pollution or safety benefits, the proposed rules could allow their use.

In response to these initiatives the Coast Guard published proposed rules in the May 16, 1977 issue of the FEDERAL REGISTER (42 FR 24868) to incorporate the recommended changes to ship construction and equipment standards. As a result of public interest generated by these proposals, the period for public comments was extended from September 1, 1977 to November 15, 1977. Over 200 written comments were received during this period, most of which indicated support for more stringent tanker standards.

At the same time, the United States proposed changes to the international standards for tanker construction and equipment and the international system of inspection and certification of tankers. These proposals, together with various alternatives, were considered at the International Conference on Tanker Safety and Pollution Prevention (TSPP) held under the auspices of the Intergovernmental Maritime Consultative Organization (IMCO) in London, February 6-17, 1978. IMCO is the specialized agency of the United Nations which considers maritime safety and pollution prevention matters. A draft environmental impact statement was prepared regarding the effects of U.S. participation in the February Conference and was made available to the Presidents Council on Environmental Quality and the public on February 3, 1978.

The Coast Guard waited until the International Conference was concluded before taking any further action on the proposal made on May 16, 1977.

WITHDRAWAL OF PROPOSAL OF MAY 16, 1977

The Conference adopted two important instruments; the *Protocol of 1978 Relating to the International Convention for the Safety of Life at Sea, 1974,* and the *Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973.* Because the standards adopted by the Conference are at least equivalent and in some cases are more stringent than the Presidential Initiatives, and realizing that pollution of the seas by oil is a global problem which requires a global solution, the Coast Guard intends to propose the TSPP standards instead of the rules for double bottoms and segregated ballast proposed in the FEDERAL REGISTER of May 16, 1977. Accordingly, that proposal is hereby withdrawn.

NEW PROPOSAL

On April 20, 1978 the Coast Guard issued a Notice in the FEDERAL REGISTER (43 FR 16886) of a plan to implement the results of the TSPP Conference. The dates for implementation were subsequently amended by another notice published in the FEDERAL REGISTER of September 21, 1978 (43 FR 42833). The proposal in this document is issued in accordance with that plan and adopts the substance of the TSPP requirements. This proposal also implements certain minimum standards contained in Section 5 of the Port and Tanker Safety Act of 1978 (PTSA) which are the same as standards adopted by the TSPP Conference. Other provisions of the new Act will be the subject of future rulemaking proposals in the FEDERAL REGISTER.

DISCUSSION OF THE PROPOSED REGULATIONS

The proposed regulations would require the following:

1. A crude oil tank vessel of 20,000 DWT or more that is contracted for after June 1, 1979 or delivered after June 1, 1982 would be required to have protectively located segregated ballast tanks (SBT) and crude oil washing (COW) system.

2. All other crude oil tank vessels of 40,000 DWT or more would be required to have either SBT, COW, or dedicated clean ballast tanks (CBT) not later than June 1, 1981. The CBT option ceases on June 1, 1983 for crude oil tank vessels of 70,000 DWT or more, and on June 1, 1985 for crude oil tank vessels between 40,000 DWT and 70,000 DWT.

3. A tank vessel of 30,000 DWT or more that carries oil other than crude oil, that is contracted for after June 1, 1979 or delivered after June 1, 1982 would be required to have protectively located SBT.

4. All other tank vessels of 40,000 DWT or more that carry oil other than crude oil would be required to have either SBT or CBT not later than June 1, 1981.

The definition of tank vessel has been expanded to include integrated tug barges. This is because for purposes of this propsed rulemaking the level of safety and pollution prevention of these vessels should be the same as self propelled tankships.

SBT are tanks which are completely separated from cargo oil and fuel oil systems and which are permanntly allocated to the carriage of water ballast. Protectively located (PL) SBT are segregated ballast tanks which are located within the cargo tank length of a tanker, outboard of or below the cargo tanks, which would provide protection against oil outflow in the event of a collision or grounding.

COW is a tank cleaning procedure that utilizes crude oil as the washing medium. Crude oil is discharged through fixed tank washing machines positioned so that oil is sprayed on internal tank bulkheads and structures to remove the oil residue which remains after cargo discharge. The spray action of the thixotropic crude oil and the subsequent rundown place the oil residue back into suspension so that the combination of remaining cargo and residue can be collected and discharged ashore through installed piping. Due to the solvent action of the crude oil, the amount of oil and sludge recovered and pumped ashore is increased significantly over that which is removed by other washing techniques. The potential for pollution is reduced because less oil and sludge remains in the empty tanks to be mixed with ballast water which is subsequently discharged.

Dedicated CBT are cargo tanks dedicated solely to the carriage of clean ballast water and no longer carry cargo. The associated piping systems and pumps may be common for both cargo and ballast systems provided they are flushed prior to handling clean ballast.

In interpreting the term "Major conversion", as used in the PTSA, the Coast Guard has determined that the installation of only segregated ballast tanks, dedicated clean ballast tanks, or a crude oil washing system would not be considered a major conversion. This determination is consistent with the use of that term in the *Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973.*

These proposed regulations would implement the Standards contained in the *Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973.* Proposed implementation dates and application of these standards are consistent with the Protocol. It is proposed that final rules be published before June 1, 1979, in order to meet the fixed date requirements contained in the Protocol.

The Coast Guard evaluated alternatives to, and standards in addition to, the standards adopted by the TSPP Conference. These included:

- The original TSPP proposals by the United States
- Increase in applicability of PL/SBT for new vessels
- Deletion of COW option for existing crude carriers
- Increased applicability of CBT and SBT options

The environmental and cost impacts of these measures, together with the reasons why the Coast Guard chose to implement the standards adopted by the TSPP Conference are set forth in the Environmental Impact Statement and Regulatory Analysis prepared as a part of this rulemaking proposal.

ENVIRONMENTAL IMPACT

The proposed regulations are aimed at reducing accidental and operational oil pollution and improving the safety of tank vessels, as were the measures proposed on May 16, 1977. For new crude oil carriers and tank vessels that carry oil other than crude oil (product carrier) the original proposal for double bottoms and SBT is being replaced by a proposal for protective location of SBT and, on new crude oil carriers, COW would also be required.

Protective location of SBT is the selective location of SBT along ths sides and bottom of the cargo tanks to provide a measure of protection against hull penetration produced by collision, ramming, or grounding. The proposed regulations would require 45% hull protection for tank vessels of 20,000 DWT linearly interpolated to 30% for 200,000 DWT tank vessels. Most of the tankers to which this rule applies and that operate within U.S. waters are in the size range that would require 40-45% protection of the cargo tanks. Protective location of SBT, together with COW for new crude oil tankers, is expected to provide at least the same level of protection of U.S. waters from operational pollution as would double bottoms.

Side damaging accidents (collisions and rammings) resulting in oil outflow within 50 miles of the U.S., occur more frequently than bottom damaging accidents. Thus SBT distributed to selectively protect 40-45% of the side and bottom shell area would have approxi-

mately the same effect in reducing accidental oil outflows in U.S. waters as would a requirement for double bottoms.

All tankers that have COW would be required to have an inert gas system that must be in proper operation during the washing process. The proposed dates for implementation of requirements for inert gas systems are also contained in the September 21, 1978 notice.

For existing vessels (defined in § 157.03(j) as any vessel that is not a new vessel) the May 16, 1977 proposed requirement for SBT is being replaced. The new proposal would give existing crude oil carriers the option of SBT or COW with CBT as an interim measure. Existing product carriers would have the option of SBT or CBT. Where SBT or CBT are located against the shell of the tank vessel, they provide defense against accidental oil outflow in the event of a collision, ramming, or grounding, in which case the added benefits of protective location of SBT previously discussed would apply.

Operational pollution from tank vessels occurs from deballasting, tank cleaning, and sludge removal prior to shipyard entry. SBT eliminates oil pollution generated during deballasting but does not reduce oil pollution from the other two operations. COW, however, reduces pollution from all of these operations. In addition, COW provides an economic benefit because a greater amount of cargo may be discharged ashore from each tank that has been crude oil washed.

It is estimated that SBT on all existing crude oil tank vessels of 40,000 DWT or more which call at U.S. ports would reduce by about 28% the estimated amount of operational oil inputs to the world's oceans from those vessels. COW, installed on these vessels and operated in accordance with the proposed regulations in lieu of SBT, would reduce the same estimated oil input figure by about 38%. In view of this comparison, the Coast Guard considers COW an equivalent environmental protection substitute for SBT.

CBT nearly eliminates the oil/water mixture created by ballasting and deballasting but, like SBT, has little or no effect on oil pollution caused by normal tank cleaning and tank cleaning prior to shipyard entry. For crude oil carriers CBT would be an interim measure before SBT or COW would be required. For product carriers, tank cleaning operations often take place after each cargo discharge to ensure purity of the next cargo to be loaded. This results in very little oil remaining in the cargo tanks and piping system. For this reason the Coast Guard considers CBT to have about the same effect as SBT on reduction of operational oil pollution from product carriers.

These new measures are expected to prevent approximately 49,000 metric tons of oil per year from entering the navigable waters of the United States and the world's oceans.

Effective operation of COW and CBT systems would depend upon adherence to a detailed operating procedure. For this reason an approved operating manual would be required for each vessel with a COW or CBT system. Being tailored for each vessel, these manuals would be expected to enhance performance of these operations as well as provide specific information for crew members.

The environmental impact of this proposal is discussed in greater detail in the Draft Environmental Impact Statement prepared as a part of this rulemaking proposal.

Economic Impact

The Coast Guard estimates that this proposed amendment will affect between 589 and 655 existing foreign crude oil carriers and between 138 and 156 foreign product carriers, depending upon options chosen by ship owners. Approximately 90 existing U.S. product carriers and crude oil carriers would be affected. To achieve greater utility, some shipowners will choose to outfit their vessels to satisfy the requirements for both crude and product carriers. The number of tank vessels expected to be outfitted in this manner cannot be predicted with any degree of certainty because it is a choice to be made by individual owners. There were about 150 tankers over 40,000 DWT engaged in both crude and product service to the United States in 1976. These estimates do not account for any market compression that could result from this amendment.

Because of the current worldwide tanker surplus and the expected increase in domestic pipeline transportation of oil, very few new tankers are expected to be constructed between now and 1985. Tanker construction beyond 1985 is unknown at this time. For these reasons, the economic data assumes zero cost for new tank vessel construction.

Depending upon options chosen by shipowners, the projected initial capital cost for SBT, COW, and/or CBT, on all existing U.S. tank vessels and foreign tank vessels which call at U.S. ports, is estimated to be between $375 and $650 million. The total outlays which will be passed on to the consumer as a result of higher freight rates is estimated to be between $700 million and $1.225 billion at an expected annual cost between $50 and $85 million each subsequent year until 1985. The cost of this proposed amendment on a per ship basis, is between $0.0 and $2 million for a product carrier and between $0.5 and $2 million for a crude oil carrier, depending upon the option chosen and the size of the vessel. After 1985 the cost effect of this amendment on new tanker construction, which is unknown at this time, would be in addition to the above costs.

The economic impact is discussed in greater detail in the Draft regulatory Analysis prepared as a part of this rulemaking proposal.

Other Impacts

These proposals are also expected to increase the level of safety of tankers because SBT and CBT, when located along the sides of a vessel, reduce the risk of fire or explosion following a collision or ramming. In this regard, COW, because it will be installed with an inert gas system, is also expected to reduce the risk from fire and explosions within cargo tanks.

Proposed Regulations

Amendments to Part 157 of Title 33, Code of Federal Regulations, are proposed in this document as follows:

Division I contains proposed amendments to specific sections in Part 157 that require modification because of standards contained in the MARPOL Protocol and to conform the applicability to that prescribed in Section 5 of the Port and Tanker Safety Act of 1978 (Pub. L. 95-474).

Division II below contains the complete text of Resolution 14 to the MARPOL Protocol (Specifications for Oil tankers With Dedicated Clean Ballast Tanks) on the left side of the page and immediately to the right, the Coast Guard's interpretation of Resolution 14 in the form of proposed regulations or, in place of a proposal, and explanation of why the specification was not adopted.

Division III below contains the complete text of Resolution 15 to the MARPOL Protocol (Specifications for the Design, Operation and Control of Crude Oil Washing Systems) on the left side of the page and immediately to the right, the Coast Guard's interpretation of Resolution 15 in the form of proposed regulations or, in place of a proposal, an explanation of why the specification was not adopted.

The two column format is used to simplify reference to the MARPOL Protocol. The proposed regulations of Division II and III would be rearranged in a regulatory format and published as Subpart E and D, respectively, to Part 157 of Title 33.

This proposal has been reviewed under the Department of Transportation's "Polices and Procedures for Simplification, Analysis, and Review of Regulations" (43 FR 9582, March 8,

1978). A draft evaluation of the proposal has been prepared, and has been included in the public docket.

In consideration of the foregoing, the Coast Guard proposes to amend Part 157 of Title 33, Code of Federal Regulations as follows:

DIVISION I

1. By revising § 157.01 to read as follows:

§ 157.01 Applicability.

(a) This part prescribes design, equipment, and operation requirements for each tank vessel of 150 gross tons or more carrying oil in bulk that—

(1) Is documented under the laws of the United States (U.S. vessel); or

(2) Is a foreign vessel that—

(i) Calls at a port or place subject to the jurisdiction of the United States; or

(ii) Otherwise enters or operates in the navigable waters of the United States.

(b) This part does not apply to vessels listed in subsections (4) and (5) of Section 4417a of the Revised Statutes of the United States (46 U.S.C. 391a).

2. By amending § 157.03 by revising paragraphs (k), (n), and (v) and by adding paragraphs (bb), (cc), (dd), and (ee) to read as follows:

§ 157.03 Definitions.

* * * * *

(k) "Major conversion" means a conversion of an existing vessel that—

(1) Substantially alters the dimensions or carrying capacity of the vessel;

(2) Changes the type of vessel; or

(3) Substantially prolongs the vessel's service life.

Installation of only segregated ballast tanks, dedicated clean ballast tanks, or a crude oil washing system does not constitute a substantial alteration of carrying capacity.

* * * * *

(n) "Oil" means oil of any kind or in any form, including but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.

* * * * *

(v) "Tank vessel" means a vessel that is constructed or converted to carry liquid bulk oil cargoes in tanks and includes tankers, tankships, tank barges, combination carriers, and integrated tug barges.

* * * * *

(bb) "Crude oil" means any liquid hydrocarbon mixture occurring naturally in the earth, whether or not treated to render it suitable for transportation, and includes crude oil from which certain distillate fractions may have been removed, and crude oil to which certain distillate fractions may have been added.

(cc) "Product" means any oil except crude oil.

(dd) "Dedicated clean ballast tank" means a cargo tank that is allocated solely for the carriage of clean ballast.

(ee) "Integrated tug barge" means a tug and a tank barge with a mechanical system that allows the connection of the propulsion unit (the tug) to the stern of the cargo carrying unit (the tank barge) so that the two vessels function as a single self-propelled vessel.

3. By revising the title of Subpart B to read as follows:

Subpart B—Design, Equipment, and Installation

4. By adding § 157.08(f) to read as follows:

§ 157.08 Applicability of Subpart B.

* * * * *

(f) Sections §§ 157.09 and 157.10a do not apply to a new vessel that—

(1) Is constructed under a building contract awarded after June 1, 1979;

(2) In the absence of a building contract, has the keel laid or is at a similar stage of construction after January 1, 1980;

(3) Is delivered after June 1, 1982; or

(4) Has undergone a major conversion for which—

(i) The contract is awarded after June 1, 1979;

(ii) In the absence of a contract, conversion is begun after January 1, 1980; or

(iii) Conversion is completed after June 1, 1982.

5. By adding a new § 157.10 to read as follows:

§ 157.10 Protective location of segregated ballast tanks and crude oil washing systems for certain new vessels.

(a) This section applies to a new vessel that—

(1) Is constructed under a building contract awarded after June 1, 1979;

(2) In the absence of a building contract, has the keel laid or is at a similar stage of construction after January 1, 1980;

(3) Is delivered after June 1, 1982; or

(4) Has undergone a major conversion for which—

(i) The contract is awarded after June 1, 1979;

(ii) In the absence of a contract, conversion is begun after January 1, 1980; or

(iii) Conversion is completed after June 1, 1982.

(b) Each vessel under this section of 20,000 DWT or more that carries crude oil and of 30,000 DWT or more that carries only products must have segregated ballast tanks that have a total capacity to allow the vessel to meet the draft and trim requirements in paragraph (c) of this section without recourse to the use of oil tanks for water ballast.

(c) In any ballast condition during any part of a voyage, including that of lightweight with only segregated ballast, each vessel under paragraph (b) of this section must have the capability of meeting each of the following:

(1) The molded draft amidship (dm) in meters, without taking into account vessel deformation, must not be less than dm in the following mathematical relationship:

$$dm = 2.0 + 0.02L$$

(2) The drafts at the forward and after perpendiculars must correspond to those determined by the draft amidship under paragraph (c)(1) of this section, in association with a trim by the stern of no more than 0.015L.

(3) The minimum draft at the after perpendicular is that which is necessary to obtain full immersion of the propeller.

(d) Segregated ballast tanks under paragraph (b) of this section, voids, and other spaces that do not carry cargo which are within the cargo tank length must be distributed as determined under the procedure contained in Appendix C of this part.

(e) Each vessel under this section of 20,000 DWT or more that carries crude oil must have a crude oil washing system that meets the design, equipment, and installation requirements in Subpart D of this part.

(f) Each vessel under this section may be designed to carry ballast water in cargo tanks as allowed under § 157.35.

6. By adding a new § 157.10a to read as follows:

§ 157.10a Segregated ballast tanks, crude oil washing systems, and dedicated clean ballast tanks for certain new and existing vessels.

(a) Not later than June 1, 1981, except as allowed in paragraph (b) of this section, an existing vessel of 40,000 DWT or more that carries crude oil and a new vessel of 40,000 DWT or more but less than 70,000 DWT that carries crude oil must have—

(1) Segregated ballast tanks with a total capacity to meet the draft and trim requirements in paragraph (d) of this section; or

(2) A crude oil washing system that meets the design, equipment, and in-

stallation requirements of Subpart D of this part.

(b) Each vessel otherwise subject to paragraph (a) of this section does not have to meet the requirements of paragraph (a) of this section until June 1, 1983, for an existing vessel of 70,000 DWT or more, or until June 1, 1985, for a new or existing vessel of 40,000 DWT or more but less than 70,000 DWT, if the vessel has—

(1) Dedicated clean ballast tanks with the total capacity to meet the draft and trim requirements under paragraph (d) of this section; and

(2) The equipment under Subpart E of this part.

(c) Not later than June 1, 1981, an existing vessel of 40,000 DWT or more that carries only products and a new vessel of 40,000 DWT or more but less than 70,000 DWT that carries only products must have—

(1) Segregated ballast tanks with a total capacity to meet the draft and trim requirements in paragraph (d) of this section; or

(2) Dedicated clean ballast tanks with a total capacity to meet the draft and trim requirements in paragraph (d) of this section; and

(3) The equipment required under Subpart E of this part.

(d) In any ballast condition during any part of a voyage, including that of lightweight with either segregated ballast in segregated ballast tanks or clean ballast in dedicated clean ballast tanks, each vessel under paragraphs (a)(1), (b), and (c) (1) and (2) of this section must have the capability of meeting each of the following:

(1) The molded draft amidship (dm) in meters, without taking into account vessel deformation, must not be less than dm in the following mathematical relationship:

$$dm = 2.0 + 0.02L$$

(2) The drafts at the forward and after perpendiculars must correspond to those determined by the draft amidship under paragraph (d)(1) of this section, in association with a trim by the stern of no more than 0.015L.

(3) The minimum draft at the after perpendicular is that which is necessary to obtain full immersion of the propeller.

(e) Each vessel that meets paragraph (a)(1), (b), or (c) of this section may be designed to carry ballast water in cargo tanks as allowed under § 157.35.

7. By adding § 157.11 (d) and (e) to read as follows:

§ 157.11 Pumping, piping, and discharge arrangements.

* * * * *

(d) Each vessel under § 157.10 must have—

(1) Oil piping lines that are designed and installed to minimize oil retention in those lines;

(2) Equipment that drains each cargo pump and oil piping line of oil residue;

(3) Oil piping lines for the draining of oil residue from cargo pumps and other oil piping lines to a cargo tank or a slop tank; and

(4) An oil piping line that terminates on the weather deck at the extreme breadth of the deck for the draining of oil residue from cargo pumps and other oil piping lines to a receptacle on the shore.

(e) Each vessel under §§ 157.09 and 157.10a must have—

(1) Equipment that drains each cargo pump and oil piping line of oil residue;

(2) Oil piping lines for the draining of oil residue from cargo pumps and other oil piping lines to a cargo tank or a slop tank; and

(3) An oil piping line that terminates on the weather deck at the extreme breadth of the deck for the draining of oil residue from cargo pumps and other oil piping lines to a receptacle on the shore.

8. By revising § 157.15(b)(1) to read as follows:

§ 157.15 Slop tanks in tank vessels.

* * * * *

(b) * * *

(1) Segregated ballast tanks that meet the requirements in § 157.09, § 157.10, or § 157.10a; or

* * * * *

9. By revising § 157.24(c) to read as follows:

§ 157.24 Submission of calculations, plans, and specifications.

* * * * *

(c) Calculations to substantiate compliance with the segregated ballast distribution requirements in § 157.09(d) or § 157.10(d).

* * * * *

10. By revising § 157.35 to read as follows:

§ 157.35 Ballast added to cargo tanks.

The master of a tank vessel that meets § 157.09, § 157.10, § 157.10a(a)(1), § 157.10a(b), or § 157.10a(c) shall ensure that ballast water is carried in segregated ballast tanks or dedicated clean ballast tanks, except additional ballast water may be carried in a cargo tank if—

(a) The vessel encounters abnormally severe weather conditions;

(b) More ballast water than can be carried in segregated ballast tanks or dedicated clean ballast tanks in necessary for the safety of the vessel;

(c) The ballast water is processed and discharged in compliance with § 157.37; and

(d) On a new vessel under § 157.10 that carries crude oil, the ballast water is only carried in a cargo tank that was crude oil washed in accordance with Subpart D of this part during the most recent discharge of crude oil from that tank.

11. By adding Appendix C to Part 157 to read as follows:

APPENDIX C—PROCEDURE FOR DETERMINING DISTRIBUTION OF SEGREGATED BALLAST TANKS TO PROVIDE PROTECTION AGAINST OIL OUTFLOW IN THE EVENT OF GROUNDING OR COLLISION

1. *Source.* The procedure for determining the distribution of segregated ballast tanks contained in this appendix conforms to Regulation 13E of the *Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973,* done at London on February 17, 1978.

2. *Procedure.* protective location of segregated ballast tanks, voids, and other spaces that do not carry cargo which are within the cargo tank length is determined from the following:

$$\epsilon PA_c + \epsilon PA_s \geq J\,[L_t(B+2D)]$$

Where—

PA_c=the side shell area in square meters based on projected molded dimensions for each segregated ballast tank, void, or other space that does not carry cargo which complies with paragraph 2(b) of this appendix;

PA_s=the bottom shell area in square meters based on projected molded dimensions for each segregated ballast tank, void, or other space that does not carry cargo which complies with paragraph 2(b) of this appendix;

L_t=the length in meters between the forward and after extremities of the cargo tanks;

B=the maximum breadth of the ship in meters measured amidship to the molded line of the frame; and

D=the molded depth in meters measured vertically from the top of the keel plate to the top of the freeboard deck beam at the side amidships. In tank vessels having rounded gunwales, the molded depth is measured from the top of the keel plate to the point of intersection of the molded lines of the deck and side shell plating, the lines being extended as though the gunwale were of angular design.

(a) *Method of determining a value for J.*

(1) For tank vessels of 20,000 DWT, J=0.45.

(2) For tanks vessels of 200,000 DWT or more—

(A) J=0.30; or

(B) J=the greater of 0.20, or

$$0.30 - [a - (0_c + 0_s)/4\ 0_A],$$

where:

a=0.25 for tank vessels of 200,000 DWT.
a=0.40 for tank vessels of 300,000 DWT.
a=0.50 for tank vessels of 420,000 DWT.

For values of DWT between 200,000 and 300,000 DWT, 300,000 and 420,000 DWT, and greater than 420,000 DWT, the value of "a" is determined by linear interpolation.

O_c=as calculated in Appendix A of this part.

O_s=as calculated in Appendix A of this part.

O_A=the allowable oil outflow meeting § 157.19(b)(1) of this part.

(3) For values of DWT between 20,000 DWT and 200,000 DWT, the value of "J" is determined by linear interpolation between 0.45 and 0.30 respectively.

(b) *PA_c* and *PA_s*: Criteria for determining the segregated ballast tanks, voids, and other spaces that do not carry cargo.

The following criteria are to be met for a segregated ballast tank, void, or space that does not carry cargo to be used in determining PA_c and PA_s:

(i) The minimum width of each wing tank or space, either of which extends for the full depth of the vessel's side or from the main deck to the top of the double bottom is 2 meters or more. The width is measured inboard from the vessel's side shell plating at right angles to the vessel's center line. If a wing tank or space has a width anywhere within it that is less than 2 meters, that wing tank or space is not to be used when calculating PA_c.

(ii) The minimum vertical depth of each double bottom tank or space is B/15 or 2 meters, whichever is smaller. If a double bottom tank or space has a depth less than 2 meters or B/15 anywhere within it, the double bottom tank or space is not to be used when calculating PA_s.

(iii) The minimum width of a wing tank or space is not measured in the way of—

(A) The turn of the bilge area; or

(B) A rounded gunwale area.

(iv) The minimum depth of a double bottom tank or space is not measured in the way of the turn of the bilge area.

DIVISION II - DEDICATED CLEAN BALLAST TANKS

12. The following is reprinted from the

ANNEX TO RESOLUTION 14 OF THE INTERNATIONAL CONFERENCE ON TANKER SAFETY AND POLLUTION PREVENTION, 1978:

SPECIFICATIONS FOR OIL TANKERS WITH DEDICATED CLEAN BALLAST TANKS

12. The following is the Coast Guard interpretation and proposed implementat of Resolution 14:

Subpart E Dedicated Clean Ballast Tanks: Design and Operation

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1. PURPOSE

The purpose of these Specifications is to define:

(a) the proper on board arrangements, and

(b) the operational procedures

for the dedicated clean ballast tanks (CBT) concept. These Specifications are intended to be used by shipowners when developing and by Administrations when approving detailed arrangements and procedures for each individual tanker.

[Paragraph 1 of the Annex is a statement of general policy and would not be included in this proposed subpart.]

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2. APPLICATION

These Specifications apply to oil tankers intended to be operated under the CBT concept in accordance with Regulation 13A of Annex I of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL Protocol).

[Applicability statements are in proposed §157.10a.]

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3. ON BOARD ARRANGEMENTS

The selection of tanks dedicated solely to the carriage of clean ballast and the pumping and piping arrangements shall be developed by the shipowner and be approved and certified by the Administration on the basis of these specifications.

(a) Each owner of a U.S. tank vessel under §157.10a(b) or §157.10a(c)(2 must submit to the Commandant (G-MMT), U.S. Coast Guard, Washington D.C. 20590, plans that include -

(1) the dedicated clean ballast tanks arrangement; and

	(2) the pumping and piping arrangements for the dedicated clean ballast tanks. (b) If the plans submitted under paragraph (a) of this section show that the dedicated clean ballast tank system meets this subpart, the Commandant informs the owner by letter that the plans are accepted. (c) If the owner of a foreign tank vessel under §157.10a(b) or §157.10a(c)(2) desires the Coast Guard letter under [paragraph (b)(2) opposite Annex paragraph 6.], the owner must submit to the Commandant (G-MMT), U.S. Coast Guard, Washington D.C. 20590, plans that include - (1) the dedicated clean ballast tanks arrangement; and (2) the pumping and piping arrangements for the dedicated clean ballast tanks. (d) If the plans submitted under paragraph (c) of this section show that the dedicated clean ballast tank system meets this subpart the Commandant informs the owner by letter that the plans are accepted.
3.1 Selection of tanks The selection of clean ballast tanks shall be made to achieve the best overall result from operational and pollution prevention points of view, having regard to the following aspects;	[The introductory sentence of Annex Resolution 3.1 is broad and vague and would not be adopted in the proposed subpart.]
(a) Tanks shall be so selected as to provide adequate capacity to enable the tanker to meet the minimum draught and trim requirements specified in Regulation 13(2) of Annex I of the MARPOL Prototol.	[This requirement is addressed in proposed §157.10a(d).]
(b) Hull stress must be within acceptable limits in the resulting ballast and loaded conditions.	[Under 46 CFR 31.10-1, each tank vessel must meet the current standards of the American Bureau of Shipping relating to the material and construct of its hull. Consequently the requirement in Annex paragraph 3.1(b) is redundant and would not be included in this proposed subpart.]

(c) Tanks shall be so selected as to require a minimum of involvement of the cargo piping and pumping system.	(a) Dedicated clean ballast tanks must be those cargo tanks that - (1) have the least amount of oil conveyed through the pumping and piping system; (2) allow the vessel to meet the draft and trim requirements under §157.10a(j)(1), (2), and (3), when filled with ballast water; and (3) are wing tanks or are center tanks that are accepted by the Commandant.
(d) While wing tanks are preferable from the damage protection point of view for carriage of clean ballast, centre tanks are acceptable, if they offer a significantly better overall arrangement with regard to tank volume and piping arrangements.	
(e) If a slop tank is not included in the original tank arrangement, a tank of sufficient capacity shall be designated as the slop tank to receive the pipe flushing water.	[Slop tanks on tank vessels are required under 33 CFR 157.15; therefore it is unnecessary to include the Annex requirement in this subpart.]
3.2 Pumping and piping In the overall arrangement the following points should also be kept in mind:	[The introductory sentence of Annex paragraph 3.2 implies that the subparagraphs following it are advisory. The Coast Guard, however, regards most as mandatory.]
(a) All ballast tanks should, whenever possible, be served by a single pump with a minimum of piping involved, in order to reduce the risk of contamination.	(a) Dedicated clean ballast tanks must be connected only to one pump using the least practicable amount of piping.
(b) The piping system required for ballast handling should be arranged to flush without depositing oily water in the clean ballast tanks. Flushing may be done from a sea chest through the piping to a slop tank or from the clean ballast tanks to the slop tank. If separate ballast lines are used, these lines need not be flushed.	(b) Each piping system that is arranged to convey clean ballast and cargo must be designed to be flushed to the slop tank with water. (c) The piping system of each dedicated clean ballast tank must be arranged so that oily water does not enter any dedicated clean ballast tank when the tank piping system is flushed.

[The Coast Guard regards the second sentence of Annex paragraph 3.2(b) as a operating requirement which would read as follows:

The master shall ensure that flushing water is pumped from a sea chest or a dedicated clean ballast tank through the dedicated clean ballast piping system and then to a slop tank.]

(c) "Dead end" pipe sections should be avoided as far as possible but where necessary means shall be provided to drain such sections by connexion to a stripping device.

[The requirement of Annex paragraph 3.2(c) is included in proposed §157.11(e).]

(d) Double valve separation of ballast and cargo spaces should always be maintained during the voyage and to the maximum extent possible during cargo and ballast operations.

(d) Each dedicated clean ballast tank must be isolated from each cargo tank by at least two valves in the piping system.

[The following operating requirements would be added to read:

The master of each U.S. tank vessel under §157.10a(b) or §157.10a(c)(2) shall ensure that the valves isolating each dedicated clean ballast tank from each cargo tank remain closed during a voyage.

The master of each foreign tank vessel under §157.10a(b) or §157.10a(c)(2) shall ensure that the valves isolating each dedicated clean ballast tank from each cargo tank remain closed when the vessel operates in the navigable waters of the United States.]

(e) When an oil content meter is installed as required by Regulation 13A(3) of the MARPOL Protocol, sampling points should be arranged to enable sampling of all discharges of clean ballast water, as well as regular load on top (LOT) discharges. When possible a sampling point should be arranged to enable sampling of the pipe flushing water routed to the slop tank.

[Requirements for approval, installation and operation of cargo monitors that would meet Annex paragraph 3.2(e) are in proposed 33 CFR 157.11 and proposed 46 CFR Subpart 162.050 which were published as CGD 76-088b and CGD 76-088a in the Federal Register of June 27, 1977 (42 FR 32684 and 32686).]

(e) The dedicated clean ballast piping system must have a sample point that is -

(1) located in a vertical section of piping; and

(2) of the type shown in 46 CFR Figure 162.050-17(e) (proposed on page 32690 of the June 27, 1977 Federal Register).

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4. OPERATIONAL PROCEDURES

A Clean Ballast Tank Operation Manual, which includes a check list, shall be developed by the shipowner for each individual tanker and shall be approved by the Administration on the basis of these Specifications.

[New paragraphs (c) and (e) would be added to §157.23 to read as follows:

§157.23 Cargo and ballast system information.

* * * * *

(c) Each tank vessel under §157.10a(b) or §157.10a(c)(2) must have a manual entitled Dedicated Clean Ballast Tank Operation Manual approved by the Coast Guard or the government of the vessel's flag state that includes -

(1) a procedure for clean ballast tank operations. (Appendix D is an example of such a procedure.); and

(2) the text of the Annex of Resolution 14 of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973, done at London on February 17, 1978.

* * * * *

(e) [Procedures for submittal and approval similar to that contained in 46 CFR Subpart 50.20 and in 43 FR 49440 would appear here.]

4.1 In loading port

Prior to the tanker's arrival at loading port, the clean ballast quantity may be reduced to berthing condition, using a pipe that has

(a) Before clean ballast in a dedicated clean ballast tank is discharged or transferred, the master of each vessel under §157.10a(b)

been cleaned during the ballast voyage. A CBT tanker is never loaded to its full cargo carrying capacity, and is normally capable of carrying a full cargo together with the normal quantity of port ballast, i.e. quantity of clean ballast for arrival purposes. This enables the tanker to operate, draught permitting, without handling any ballast water in port.

After any discharge of clean ballast in port the affected pipe system should be drained, and all valves to clean ballast tanks should be closed. If the pipe flushing procedure requires water to be available in the ballast tanks, the proper quantity is left in these tanks before they are closed off from the piping system. Thereafter, the piping system is used for normal cargo loading operations.

4.2 Loaded voyage

During the voyage in loaded condition pump and pipe flushing is carried out. Any resulting oily mixtures are to be settled in a slop tank. Overboard discharges from the slop tank are to be controlled in accordance with the requirements of the MARPOL Protocol.

When convenient after departure, the pumping and piping system to be used for clean ballast handling is flushed to a slop tank. The quantity of flushing water available should be at least 10 times the affected pipe volume. If ballast in excess of the necessary flushing water quantity is retained on board during loading, the remaining quantity can be discharged overboard using the clean piping.

When an oil content meter is installed in accordance with the requirements of Regulation 13A(3) of Annex I of the MARPOL Protocol, all discharges shall be monitored by this equipment. Where possible, the oil content in the pipe flushing water shall also be monitored to assist in controlling the efficiency of the flushing and for the detection of any abnormalities in the operation.

or §157.10a(c)(2) shall ensure that the pump and piping system for conveying the clean ballast are flushed.

(b) Before the piping system under [paragraph (b) opposite Annex paragraph 3.2(b)] of this section is used for cargo transfer operations the master shall ensure that -

(1) the volume of water in the dedicated clean ballast tanks for flushing the piping system, is equal to at least 10 times the volume of the pipe to be flushed;

(2) the piping system is drained of fluid; and

(3) the valves under [paragraph (d) opposite Annex paragraph 3.2(d)] are closed.

(c) The master of a U.S. tank vessel under §157.10a(b) or (c)(2) during a voyage, and the master of a foreign tank vessel under §157.10a(b) or (c)(2) when operating in the navigable waters of the United States or calling at a port or place subject to the jurisdiction of the United States, shall ensure each of the following:

(1) If the pumps and piping system for clean ballast are flushed, they are flushed to the slop tank.

(2) If clean ballast water is discharged, it is discharged through a piping system that has been flushed before the water is discharged.

(3) Clean ballast from each dedicated clean ballast tank is discharged in accordance with §157.43.

(4) When the piping system is being flushed -

(i) the oil content of the flushing water in the piping system is monitored by the cargo monitor under §157.11(b) (proposed on page 32685 of the June 27, 1977 Federal Register);and

(ii) the piping system is flushed until the oil content of the flushing water in the piping stabilizes.

4.3 In unloading port

Prior to berthing in an unloading port, a quantity of clean ballast, adequate for flushing the piping designated for handling clean ballast, shall be taken on board through that piping which has remained clean throughout the voyage. If port draught limitations permit, it is recommended that more ballast be taken on board within the deadweight limit, up to the normal quantity for departure condition, thereby eliminating the need for further handling of ballast during the unloading. If it is expected that further ballasting during the unloading is necessary, the required pump and pipe section is initially left clean. The desired ballast is taken on as soon as draught conditions permit, whereupon the unloading can continue with all pumps available.

Upon completion of the unloading or at departure, the pump and piping is flushed to the slop tank, followed by ballasting of the clean ballast tanks to normal sea conditions.

(5) If a pump or piping system that is flushed is used to convey cargo during an emergency, it is reflushed as prescribed in paragraph (c)(1) of this section before it is used to convey clean ballast.

(6) Dedicated clean ballast tanks are not ballasted during the loading or unloading of cargo.

4.4 Ballast voyage

During the ballast voyage the pumping and piping system used for handling clean ballast shall be kept clean and, after any handling of oily water, be reflushed as necessary in preparation for ballast handling in the loading port. Overboard discharges from the slop tank are to be controlled in accordance with the requirements of the MARPOL Protocol.

[The first sentence of Annex section 4.4 is proposed in the paragraph opposite Annex paragraph 4.1. The second sentence is not proposed because it would be redundant to 33 CFR 157.37 as amended by CGD 76-088b published in the Federal Register of June 27, 1977.]

4.5 Check list

The approved operational procedures should be supplemented by a check list. The list in the Appendix to these Specifications applies generally to all tankers operating under the CBT concept. When the check list for a specific tanker is prepared, it should be expanded to include any other step of relevance and be completed with appropriate identification of pumps, valves, etc.

[The check list in Annex section 4.5 would be included as Appendix D to 33 CFR Part 157.]

5. SURVEY AND CERTIFICATION

5.1 Every oil tanker intended to be operated with dedicated clean ballast tanks in accordance with Regulation 13A of Annex I of the MARPOL Protocol, shall be subject to the survey required by Regulation 4 of Annex I of that Protocol and carried out in accordance with these Specifications.

[U.S. tank vessels would be inspected in accordance with 46 CFR Part 31. Foreign tank vessels would be boarded as the enter U.S. ports or waters to determine if they comply with this subpart. A document would be issued by the Coast Guard to evidence compliance.]

5.2 Such survey should be made prior to the date of coming into force of the MARPOL Protocol in order to enable issue of the International Pollution Prevention Certificate before compliance with the MARPOL Protocol requirements becomes mandatory.

[International Pollution Prevention Certificates will not be issued by the Coast Guard until after the MARPOL Protocol comes into effect. When a vessel complies with this subpart during inspection opposite Annex paragraph 5.1, it is proposed that a letter showing compliance with this subpart be issued to the vessel. When certificates come into effect, it is proposed that a certificate showing compliance with 33 CFR 157 be issued to the vessel.]

5.3 The survey shall verify the appropriateness of:

- the selection of ballast tanks and pumping and piping arrangements, in accordance with Section 3 above;
- the CBT Operation Manual, i.e. the detailed operational procedures including check list, in accordance with Section 4 above.

[The survey requirements of Annex paragraph 5.3 are inherent in the requirement of the paragraph opposite Annex paragraph 6 that the vessel meet the approved plans and have an instruction manual in order to receive a letter.]

5.4 Upon approval in the respects mentioned in Section 5.3 above, the International Pollution Prevention Certificate shall be issued by the Administration. The wording in the Certificate shall state which tanks are approved solely for the carriage of dedicated clean ballast. It shall also state that the Master has been supplied with information concerning approved operational procedures (CBT Operation Manual).

[A letter under paragraph (b) or (d) opposite Annex paragraph 3 will be issued instead of the Certificate until the MARPOL Protocol comes into effect.]

5.5 Alterations to a CBT tanker which affect its capability to be operated under the CBT concept require the approval of the Administration and shall be reflected in the International Pollution Prevention Certificate and, if appropriate, in the CBT Operation Manual.

(a) The master shall ensure that no person alters the dedicated clean ballast tanks or equipment of a tank vessel that has a letter under [paragraph (b) or (d) opposite Annex paragraph 3] so that they no longer meet the plans accepted under [paragraph (a) or (c) opposite Annex paragraph 3] unless -

(1) The owner submits plans to the Commandant (G-MMT), U.S. Coast Guard, Washington, D.C. 20590, that show the alterations;

(2) the owner submits to the Commandant (G-MMT), U.S. Coast Guard, Washington, D.C. 20590, changes to the manual under §157.23(c) that describes the alterations; and

(3) the Commandant informs the owner by letter that he accepts the plans submitted under paragraph (a) of this section and the description of the alterations submitted under paragraph (b) of this section.

6. DOCUMENTS

The International Pollution Prevention Certificate and the CBT Operation Manual shall at all times be available on board the tanker.

(a) On and after June 1, 1981, the master of a U.S. tank vessel under §157.10a(b) or §157.10a(c)(2) shall ensure that the vessel does not engage in a voyage unless the vessel has on board -

(1) the letter from the Commandant under [paragraph (b) opposite Annex paragraph 3]; and

(2) the Coast Guard approved manual entitled Dedicated Clean Ballast Tank Operation Manual under [paragraph (c) opposite Annex paragraph 4].

(b) On and after June 1, 1981, no foreign tank vessel under §157.10a(b) or §157.10a(c)(2) may enter the navigable waters of the U.S. or call at a port or place subject to the jurisdiction of the U.S. unless the vessel has on board a manual entitled Dedicated Clean Ballast Tank Operation Manual that is approved by the U.S. Coast Guard or the government of the vessel's flag state and -

(1) A document from the government of the vessel's flag state that certifies the vessel's compliance with Resolution 14 of the Protocol of 1978 relating to the International Convention for the Prevention of Pollution from Ships, 1973, done at London on February 17, 1978; or

(2) A letter under [paragraph (d) opposite Annex paragraph 3] from the Commandant accepting the plans under [paragraph (c) opposite Annex paragraph 3].

APPENDIX

CBT OPERATIONAL PROCEDURES - CHECK LIST

[The appendix to the Annex would be included as Appendix D to 33 CFR Part 157 as an example of a check list.]

I. Prior to arrival at the loading port

1. Transfer all remaining slop to a cargo tank.
2. Ensure that the pumping and piping designated for clean ballast operation have been properly cleaned to accommodate simultaneous discharge of clean ballast while loading.
3. Ensure that all valves to the slop tank and the cargo tanks are closed.
4. Perform visual inspection of all clean ballast tanks and their contents, if any, for signs of contamination.
5. Discharge a sufficient amount of clean ballast water to ensure that remaining ballast water and cargo to be loaded will not exceed the permissible deadweight or draught. Leave a sufficient amount of water for flushing the piping, and as a minimum, a quantity equal to 10 times the volume of the affected piping.
6. Ensure that all valves to the clean ballast tanks are closed.
7. If no further ballast discharge is anticipated, drain the clean ballast piping.

II. In the loading port

1. Perform normal loading operations of cargo tanks.
2. Ensure sufficient slop tank capacity is available for subsequent reception or cargo pump and pipe flushings.

3. When applicable, discharge remaining clean ballast before entire piping system is used for loading. Leave the required minimum quantity of flushing water in ballast tanks.
4. Ensure that all valves to the clean ballast tanks are closed.
5. Ensure that all valves to the cargo tanks are closed upon completion of loading.

III. After departure from the loading port

1. Flush appropriate pumping and piping with sufficient water from clean ballast tanks into a slop tank.
2. Ensure that valves to the slop tank are closed before pumping the remaining clean water overboard and monitoring oil content of the water, either visually or by a content meter.
3. Ensure that all valves in the clean ballast tanks are closed.

IV. Prior to arrival at the unloading port

1. Ensure that all valves to the slop tank and the cargo tanks are closed.
2. Recheck that the pumping and piping designated for clean ballast operation have been properly cleaned.
3. Ballast as required through clean cargo pumps and pipes, considering port draught requirements.
4. Ensure that all valves in the clean ballast tanks are closed.

V In the unloading port

1. Allocate pumping and piping intended for clean ballast operation.
2. Perform normal unloading operations.
3. As soon as draught conditions permit, complete ballasting as required to departure condition.
4. Ensure that all valves to the clean ballast tanks are closed.
5. Complete unloading.

VI. After departure from the unloading port

1. Flush pumping and piping serving the clean ballast tanks into the slop tank.

2. Top up clean ballast tanks as required.

3. Process the slop tank content in accordance with LOT procedures.

DIVISION III - CRUDE OIL WASHING

13. The following is reprinted from the ANNEX TO RESOLUTION 15 OF THE INTERNATIONAL CONFERENCE ON TANKER SAFETY AND POLLUTION PREVENTION, 1978:

13. The following is the Coast Guard interpretation and proposed implementation of Resolution 15:

SPECIFICATION FOR THE DESIGN, OPERATION AND CONTROL OF CRUDE OIL WASHING SYSTEMS

Subpart D - Crude Oil Washing

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1. PURPOSE

The purpose of these Specifications is to provide specific design criteria, operational requirements and control and enforcement procedures for the crude oil washing of cargo tanks of crude oil carriers as specified in Section 2.

[Paragraph 1 of the Annex is a statement of purpose and would not be included in this proposed subpart.]

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2. APPLICATION

2.1 These Specifications apply to:

(a) existing crude oil tankers of 40,000 tons deadweight and above in accordance with Regulation 13(8) of the Protocol 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973 (MARPOL Protocol); and

(b) new crude oil tankers of 20,000 tons deadweight and above in accordance with Regulation 13(6) of the MARPOL Protocol, with the changes listed in Appendix I.

[Applicability statements are proposed in §§157.10 and 157.10a.]

Compliance of these ships with these Specifications shall be shown on the International Oil Pollution Prevention Certificate as modified by the MARPOL Protocol.

[The Coast Guard does not plan to issue an International Oil Pollution Prevention Certificate until after the MARPOL Protocol comes into effect. In the interim the Coast Guard will issue two letters instead of the

Certificate, one letter being issued upon acceptance of the plans for the Crude Oil Washing (COW) system, and the second being issued after the vessel passes the inspection under Annex paragraph 4.2.10.

Operating requirements would be included to read as follows:

(a) On and after June 1, 1981, the master of a U.S. tank vessel under §157.10 or §157.10a(a)(2) shall ensure that the vessel does not engage in a voyage unless the vessel has on board -

(1) the letter from the Commandant under [paragraph (d) opposite Annex paragraph 4.2.9];

(2) the letter from the Commandant under [paragraph (c) opposite Annex paragraph 4.2.10]; and

(3) the Coast Guard approved manual under [paragraph (d) opposite Annex paragraph 7].

(b) On and after June 1, 1981, no foreign tank vessel under §157.10 or §157.10a(a)(2) may enter the navigable waters of the U.S. or call at a port or place subject to the jurisdiction of the U.S. unless the vessel has on board a manual entitled Crude Oil Washing Operation and Equipment Manual approved by the Coast Guard or the government of the vessel's flag state and -

(1) a document from the government of the vessel's flag state that certifies the vessel's compliance with Resolution 15 of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973, done at London on February 17, 1978; or

(2) two letters issued by the Commandant as follows:

(i) The letter under [paragraph (d) opposite Annex paragraph 4.2.9].

(ii) The letter under [paragraph (c) opposite Annex paragraph 4.2.10].

(c) The Commandant may waive the requirements of paragraph (a)(2) and (b)(2)(ii) of this section for the purpose of complying with [paragraphs (a) and (b) opposite Annex paragraph 4.2.10].

2.2 If a crude oil that is not suitable for crude oil washing is intended to be carried as a cargo in a ship that is provided with only a crude oil washing system, then that ship must comply with segregated ballast tank requirements in accordance with Regulation 13(7) or dedicated

[Annex Paragraph 2.2 would be adopted by adding the following paragraph:

(a) The master of a tank vessel under §157.10a(a)(2) shall ensure the following:

clean ballast tank requirements in accordance with Regulation 13(9) of Annex I of the MARPOL Protocol.

(1) If the vessel carries crude oil that cannot be used for COW, the vessel meets §157.10a(a)(1) or §157.10a(b).

(2) If the vessel has a COW system and does not have segregated ballast tanks or dedicated clean ballast tanks that meet §157.10a(d), the vessel carries only the grades of crude oil that can be used for COW.]

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3. GENERAL PROVISIONS

3.1 Definition

For the purpose of these Specifications,

"Arrival ballast" means clean ballast as defined in Regulation 1(16) of Annex I of the MARPOL Protocol; and

"Departure ballast" means ballast other than arrival ballast.

[The definitions in Annex Section 3.1 are unnecessary. The following definition would be added to §157.03:

"Ballast voyage" means the voyage after the tank vessel leaves the port of final cargo discharge.]

3.2 Check Lists

The initial survey referred to in Regulation 4 of Annex I of the MARPOL Protocol shall include a complete inspection of the crude oil washing equipment and arrangements and shall include, except for the/cases specified in paragraph 4.2.11 an examination of the tanks after they have been crude oil washed and the additional controls as specified in paragraph 4.2.10 to ensure the washing system efficiency is in accordance with these Specifications.

[U.S. tank vessels would be inspected in accordance with 46 CFR Part 31. Foreign tank vessels would be boarded as they enter U.S. ports or waters to determine if they comply with this subpart. A document would be issued by the Coast Guard to evidence compliance.]

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4. DESIGN CRITERIA

4.1 Piping

4.1.1 The crude oil washing pipes and all valves incorporated in the supply piping system shall be of steel or other equivalent material and

(a) The piping, valves, and fittings of each COW system and each stripping system must -

shall be of adequate strength having regard to the pressure to which they may be subjected; and shall be properly jointed and supported.

(1) meet 46 CFR Part 56; and

(2) be of steel or an equivalent metal.

4.1.2 The crude oil washing system shall consist of permanent pipework and shall be independent of the fire mains or any system other than for tank washing except that sections of the ship's cargo system may be incorporated into the crude oil washing system provided that they meet the requirements as applied to crude oil pipework. Notwithstanding the requirements of this paragraph, in combination carriers the arrangements should allow removal of the equipment, if necessary, when carrying non-liquid cargoes and be such that when reinstated the system is as originally fitted and tested for oil tightness.

(b) The piping of each COW system must be permanently installed. [The requirements in Annex paragraph 4.1.2 concerning reinstallation and testing of removed COW piping on combination carriers are operating requirements and would be added as an operating requirement in this proposed subpart to read as follows:

If the equipment for the COW system is removed from the tank for the carriage of cargoes other than oil and then reinstalled, the master shall ensure that, before COW operations are conducted, the system has no crude oil leakage.]

(c) The COW piping system must be separate from other piping systems on the vessel, except that a section of the vessel's cargo piping system may be a part of the COW piping if that piping meets this subpart.

4.1.3 Provision shall be made to prevent overpressure in the tank washing supply piping. Any relief device fitted to prevent overpressure shall discharge into the suction side of the supply pump. Alternative methods to the satisfaction of the Administrations may be accepted provided an equivalent degree of safety and environmental protection is provided.

(d) Each COW piping system must have overpressure relief valves unless the maximum allowable working pressure of the system is greater than the shut-off head of each pump under [paragraph (a) opposite Annex paragraph 4.3].

(e) Each overpressure relief valve must discharge into the suction side of a pump under [paragraph (a) opposite Annex paragraph 4.3]

4.1.4 Where hydrant valves are fitted for water washing purposes on tank washing lines, all such valves shall be of adequate strength and provisions made for such connections to be blanked off when washing lines may contain crude oil.

(f) Each hydrant valve in a COW piping system for water washing must -

(1) have adequate strength, in accordance with 46 CFR Part 56, for the working pressure for which the system is designed; and

(2) be capable of being blanked off.

4.1.5 All connexions for pressure gauges or other instrumentation shall be provided with isolating valves adjacent to the lines or the fitting shall be of the sealed type.

(g) Each sensing instrument must have an isolating valve at its connection to the COW piping system, unless the opening to that connection

is equivalent to the diameter of a number 54 drill size (0.055 inches) or smaller.

4.1.6 No part of the crude oil washing system shall enter the machinery spaces. Where the tank washing system is fitted with a steam heater for use when water washing, the heater must be effectively isolated during crude oil washing by double shut-off valves or by clearly identifiable blanks.

(h) The piping and equipment of a COW system may not be in machinery spaces.

(i) If the washing system for cargo tanks has a steam heater for use when water washing, this heater must be capable of being isolated from the COW piping by –

(1) at least two shut-off valves; or

(2) blank flanges identifiable as being closed (e.g., spectacle flanges).

[The following would be included in this proposed subpart as an operating requirement:

The Master shall ensure that during COW operations –

(a) the valves under [paragraph (i)(1) opposite Annex paragraph 4.1.6] are shut off; or

(b) the blanks under [paragraph (i)(2) opposite Annex paragraph 4.1.6]are installed.].

4.1.7 Where a combined oil-water supply piping is provided the piping shall be so designed that it can be drained so far as is practicable of crude oil, before water washing is commenced, into spaces designated in the Operations and Equipment Manual. These spaces may be the slop tank or other cargo space.

(j) If the oil washing system is combined with the water washing system, the piping of the combined system must be designed to drain the crude oil into a slop tank or a cargo tank.

[The following paragraph would be added to this proposed subpart as an operating requirement:

Before water washing the cargo tanks, the master shall ensure that the COW piping system is drained of crude oil.]

4.1.8 The piping system shall be of such a diameter that the greatest number of tank cleaning machines required, as specified in the Operations and Equipment Manual, can be operated simultaneously at the designed pressure and throughput. The arrangement of the piping shall be such that the required number of tank cleaning machines to each cargo compartment as specified in the Operations and Equipment Manual referred to in these Specifications can be operated simultaneously.	(k) The COW piping system must be designed and arranged for sufficient pressure and flow to allow the number of COW machines needed to pass the inspections under [paragraphs (a) and (b) opposite Annex paragraph 4.2.10] to operate simultaneously.
4.1.9 The piping system shall be tested to one and one-half times the working pressure after it has been installed on the ship.	[The following requirement would be added after paragraph (h) opposite Annex paragraph 4.2.11: (i) Before the inspection under paragraph (a) of this section is conducted, the owner of a tank vessel having a COW system shall present to the Coast Guard inspector evidence that the COW piping system has passed a test of 1 1/2 times the design working pressure.]
4.1.10 The crude oil washing supply piping shall be anchored (firmly attached) to the ship's structure at appropriate locations, and means shall be provided to permit freedom of movement elsewhere to accommodate thermal expansion and flexing of the ship. The anchoring shall be such that any hydraulic shock can be absorbed without undue movement of the supply piping. The anchors should normally be situated at the ends furthest from the entry of the crude oil supply to the supply piping. If tank washing machines are necessary to anchor the ends of branch pipes then special arrangements are necessary to anchor these sections when the machines are removed for any reason.	(l) The COW system piping must be anchored to the tank vessel's structure with pipe anchors. (m) When COW machines are used as anchors, there must be other means for anchoring the piping if these machines are removed. (n) There must be a means to allow movement of the COW system piping as a result of thermal expansion and flexing of the tank vessel.
4.2 Tank washing machines	
4.2.1 The tank washing machines for crude oil washing shall be permanently mounted and shall be of a design acceptable to the Administration.	(a) COW machines must be permanently attached to the insides of each cargo tank.

4.2.2 The performance characteristic of a tank washing machine is governed by nozzle diameter, working pressure and the movement pattern and timing. Each tank cleaning machine fitted shall have a characteristic such that the sections of the cargo tank covered by that machine will be effectively cleaned within the time specified in the Operations and Equipment Manual.

(b) Each COW machine must have nozzles with a large enough diameter, a working pressure, and a movement pattern and timing to allow the tank vessel to pass the inspections under [paragraphs (a) and (b) opposite Annex paragraph 4.2.10].

4.2.3 Tank washing machines shall be mounted in each cargo tank and the method of support shall be to the satisfaction of the Administration. Where the tank washing machines are positioned well below the deck level to cater for protuberances in the tank consideration may need to be given to additional support for the machine and its supply piping.

(c) Each COW machine and its supply piping must be supported to withstand vibration and pressure surges.

4.2.4 Each machine shall be capable of being isolated by means of stop valves in the supply line. If a deck mounted tank washing machine is removed for any reason provision shall be made to blank off the oil supply line to the machine for the period the machine is removed. Similarly provision shall be made to close the tank opening with a plate or equivalent means.

(d) The supply piping attached to each COW machine must have a shut-off valve.

[The second sentence of Annex paragraph 4.2.4 would become an operating requirement to read as follows:

Whenever a deck mounted COW machine is removed from the tank, the master shall ensure that -

(1) the supply piping to that machine is blanked off; and

(2) the tank opening is sealed by a fixed steel plate.]

4.2.5 Where the drive units for the tank cleaning machines are not integral with the tank cleaning machine sufficient drive units shall be provided to ensure that no drive unit need be moved more than twice from its original position during cargo discharge to accomplish the washing programs as specified in the Operations and Equipment Manual.

(e) If the drive units for the COW machines are portable, there must be a sufficient number of drive units so that no unit is moved more than twice from its original location when COW the cargo tanks under [paragraph (a)(2) and (3) opposite Annex paragraph 6.1].

[The following operating requirement would be added to read as follows:

The master shall ensure that no portable drive unit for the COW machines is moved more than twice from its original location when COW the cargo tanks under [paragraph (a)(2) and (3) opposite Annex paragraph 6.1.]

4.2.6 The number and location of the tank washing machines shall be to the satisfaction of the Administration.

(f) Each cargo tank must have a sufficient number of COW machines that are located to wash the entire surface area of the tank by direct impingment to allow the tank vessel to pass the inspections under [paragraphs (a) and (b) opposite Annex paragraph 4.2.10], except the following may be washed by jet deflection or splashing:

4.2.7 The location of the machines is dependent upon the characteristics detailed in paragraph 4.2.2 and upon the configuration of the internal structure of the tank.

4.2.8 The number and location of the machines shall be such that all horizontal and vertical areas are washed by direct impingement or effectively by deflection or splashing of the impinging jet. In assessing an acceptable degree of jet deflection and splashing, particular attention shall be paid to the washing of upward facing horizontal areas and the following parameters shall be used.

(i) For horizontal areas of a tank bottom and the upper surfaces of a tank's stringers and other large primary structural members, the total area shielded from direct impingement by deck or bottom transverses, main girders, stringers or similar large primary structural members shall not exceed 10 per cent of the total horizontal area of tank bottom, the upper surface of stringers, and other large primary structural members.

(1) 10 percent or less of the total horizontal area of the tank bottom and the upper surfaces of structural members.

(ii) For vertical areas of the sides of a tank, the total area of the tank's sides shielded from direct impengement by deck or bottom transverses, main girders, stringers or similar large primary structural members shall not exceed 15 percent of the total area of the tank's sides.

(2) 15 percent or less of the total vertical area of the tank sides.

In some installations it may be necessary to consider the fitting of more than one type of tank washing machine in order to effect adequate coverage.

Note. The designer should consider whether or not one or more types of COW machine should be used to allow the tank vessel to pass the inspections under [paragraphs (a) and (b) opposite Annex paragraph 4.2.10].

4.2.9 At the design stage the following minimum procedures shall be used to determine the area of the tank surface covered by direct impingement:

(i) Using suitable structural plans, lines are set out from the tips of each machine to those parts of the tank within the range of the jets.

(ii) Where the configuration of the tanks is considered by the Administration to be complicated, a pinpoint of light simulating the tip of the tank washing machine in a scale model of the tank, shall be used.

(a) The owner, builder, or designer of a U.S. tank vessel under §157.10 or §157.10a(a)(2) must submit to the Commandant (G-MMT), U.S. Coast Guard, Washington, D.C. 20590, plans that include -

(1) the arrangement of the COW pumping and piping system;

(2) the design of each COW machine;

(3) the arrangement, location, and installation of the COW machines; and

(4) except as allowed in paragraph (c) of this section, the projected direct impingement pattern of the crude oil from the COW machines nozzles to the surfaces of each tank, showing those areas of the surfaces that are not reached by direct impingement.

(b) If the owner of a foreign tank vessel under §157.10 or §157.10a(a)(2) desires the letter from the Commandant under [paragraph (b)(2) opposite Annex paragraph 2.1] accepting the plans under this paragraph, the owner, builder, or designer must submit to the Commandant (G-MMT), U.S. Coast Guard, Washington, D.C., 20590 plans that include -

(1) the arrangement of the COW pumping and piping system;

(2) the design of each COW machine;

(3) the arrangement, location, and installation of the COW machines; and

(4) except as allowed in paragraph (c) of this section, the projected direct impingement pattern of the crude oil from the COW machines nozzles to the surfaces of each tank, showing those areas of the surfaces that are not reached by direct impingement.

(c) If the pattern under paragraph (a)(4) or (b)(4) of this section cannot be shown on a plan, a scale model of each tank must be built for Coast Guard inspection to simulate, by a pinpoint of light, the projected direct impingement pattern on the surfaces of the tank.

(d) The Commandant informs the owner by letter that the plans submitted under paragraph (a) or (b) of this section are accepted if -

(1) the plans submitted under paragraph (a) or (b) of this section show that the COW system meets this subpart;

(2) the plans submitted under paragraphs (a)(1), (2) and (3) and the scale model under paragraph (c) of this section show that the COW system meets this subpart; or

(3) the plans submitted under paragraphs(b)(1), (2) and (3) and the scale model under paragraph (c) of this section show that the COW system meets this subpart.

4.2.10 (i) To confirm the cleanliness of the tanks and to verify the design in respect of the number and location of the tank washing machines, a visual inspection shall be made by entry to the tanks after a crude oil wash but prior to any water rinse which may be specified in the Operations and Equipment Manual. The bottom of the tank to be inspected may, however, be flushed with water and stripped in order to remove any heel of crude oil before gas freeing for entry. This inspection shall ensure that the tank is essentially free of oil clingage and deposits. If the flushing procedure is adopted, a similar but unflushed tank must be used for the test specified in sub-paragraph (ii) below.

(a) Before issuing a letter that states that the vessel complies with this subpart, the Coast Guard makes an initial inspection of each U.S. tank vessel under §157.10 and §157.10a(a)(2) and each foreign tank vessel whose owner submitted the plans under [paragraph (b) opposite Annex paragraph 4.2.9] to determine whether or not the cargo tanks that carry crude oil when entering the port that are to be used as ballast tanks when leaving the port meet the following:

(1) After each tank is crude oil washed but not water rinsed, except the bottom of the tank may be flushed with water and stripped, each tank does not have oil clingage or deposits of oil, or both.

(ii) To verify the effectiveness of the stripping and drainage arrangements a measurement shall be made of the amount of oil floating on top of the departure ballast. The ratio, volume of oil on top of the total departure ballast water upon volume of tanks that contain this water shall not exceed 0.00085. This test shall be carried out after crude oil washing and stripping in a tank similar in all relevant respects to the tank examined in accordance with sub-paragraph (i), which has not been subjected to a water rinse nor to the intervening water flushing permissible in sub-paragraph (i) above.

(2) After each tank is crude oil washed and stripped but not water rinsed, each tank is filled with water. The total volume of crude oil floating on top of the water in these tanks is not more than 0.0085 percent of the total volume of these tanks.

(iii) The arrival ballast after a typical ballast voyage before which the arrival ballast tanks have been crude oil washed and during which the tanks have been water rinsed in accordance with the programs set out in the Operations and Equipment Manual shall be totally discharged to the loading port harbour through an oil discharge monitoring and control system approved by the Administration, and the oil content of the effluent shall not exceed 15 ppm.

4.2.11 Where an Administration is satisfied that ships are similar in all relevant respects the requirements of paragraph 4.2.10 need only be applied to one such ship. Furthermore where a ship has a series of tanks that are similar in all relevant respects then, for that series of tanks, the requirements of sub-paragraph 4.2.10(i) need only be applied to one tank of that series.

(b) Except on a tank vessel under §157.10, if the initial inspection under paragraph (a) of this section has been passed and the vessel arrives at the first cargo loading port after completing a ballast voyage, the Coast Guard monitors through the oil discharge monitoring and control system under §157.11 (proposed on page 32685 of the June 27, 1977 Federal Register) the discharge of effluent from those tanks that have been crude oil washed, water rinsed, stripped and filled with ballast water to determine whether or not the oil content of the effluent is 15 ppm or less.

(c) If the inspections of paragraphs (a) and (b) of this section are passed, the Coast Guard issues to the tank vessel a letter that states that the vessel complies with this subpart.

(d) If more than one tank vessel is constructed from the same plans, an owner may submit a written request to the Commandant (G-MMT), U.S. Coast Guard, Washington, D.C., 20590, for only one of those tank vessels to be inspected under [paragraphs (c) and (b) opposite Annex paragraph 4.2.10].

(e) Only one tank vessel is inspected by the Coast Guard, if the Commandant accepts the request under paragraph (d) of this section.

(f) If a tank vessel has tanks similar in dimensions and internal structure, the owner may submit a written request to the Commandant (G-MMT), U.S. Coast Guard, Washington, D.C. 20590, for only one of those tanks be inspected under [paragraph (a)(1) opposite Annex paragraph 4.2.10].

(g) Only one tank of a group of tanks similar in dimensions and internal structure is inspected by the Coast Guard, if the Commandant accepts the request under paragraph (f) of this section.

(h) Before the inspection under paragraph (a) of this section is conducted, the owner of a foreign tank vessel having a COW system shall present to the Coast Guard inspector evidence that the COW system has been installed in accordance with the plans accepted under [paragraph (d) opposite Annex paragraph 4.2.9].

4.2.12 The design of the deck mounted tank washing machines shall be such that means are provided external to the cargo tank which when crude oil washing would indicate the rotation and arc of the movement of the machine.	(g) Each COW machine that is attached to the deck must have an indicator located outside of the cargo tank that shows the rotation and arc of the movement of the COW machine during COW operations.
4.2.13. Where submerged machines are required they should be non-programmed and in order to comply with the requirements of paragraph 4.2.8 it must be possible to verify their rotation either by indicators external to the tank or by checking their characteristic sound pattern. Where verification by sound pattern is the only method of checking the operation of bottom machines, then the operation of those machines shall be verified towards the end of each wash cycle. The method of verification by sound pattern shall be provided in the Operations and Equipment Manual.	(h) Each COW machine attached at or close to the bottom of each tank must not be programmable. [The following would be added to the operating requirements: (a) Near the completion of each crude oil wash cycle, the master shall ensure that rotation of each COW machine without an external indicator is verified by audio inspection. (b) The master shall ensure that during the inspection under paragraph (a) of this section, no other COW machine is operating in the same tank.]
4.3 Pumps	
4.3.1 The pumps supplying crude oil to the tank cleaning machines shall be either the cargo pumps or pumps specifically provided for the purpose.	(a) Crude oil must be supplied to the COW machines by COW system pumps or cargo pumps.
4.3.2 The capacity of the pumps shall be sufficient to provide the necessary throughput at the required pressure for the maximum number of tank cleaning machines required to be operated simultaneously as specified in the Operations and Equipment Manual. In addition to the above requirement the pumps shall, if an eductor system is fitted for tank stripping, be capable of supplying the eductor driving fluid sufficient to meet the requirements of paragraph 4.4.2.	(b) The pumps under paragraph (a) of this section must be designed and arranged with sufficient capacity to meet the following: (1) A sufficient pressure and flow to allow the number of COW machines needed to meet [paragraphs (a) and (b) opposite Annex paragraph 4.2.10] to operate simultaneously. (2) If an eductor is used for tank stripping, enough driving fluid is provided by the pumps to the eductor to allow the tank vessel to pass the inspection under [paragraph (a)(2) opposite Annex paragraph 4.2.10].
4.3.3 The capacity of the pumps shall be such that the requirements of paragraphs 4.3.2 can be met with one pump inoperative. The pumping and piping arrangements shall be such that the crude oil washing system can be effectively operated with one pump out of use.	(c) The COW system must have two or more pumps supplying oil to the COW machines. (d) The COW system must be designed to meet the requirements of this subpart with any one pump not operating.

4.3.4 The carriage of more than one grade of cargo shall not prevent crude oil washing of tanks.	(a) If a tank vessel carries more than one grade of crude oil, the COW system must be designed to allow COW with the grades of crude oil that the vessel carries.
4.3.5 To permit crude oil washing to be effectively carried out where the back pressure presented by the shore terminal is below the pressure required for crude oil washing, provision shall be made such that an adequate pressure to the washing machines can be maintained in accordance with paragraph 4.3.2 This requirement shall be met with any one cargo pump out of action. The minimum supply pressure required for crude oil washing shall be listed in the Operations and Equipment Manual. Should this minimum supply pressure not be obtainable crude oil washing operations shall not be carried out.	(e) There must be means on the tank vessel to maintain the pressure under [paragraph (b) opposite Annex paragraph 4.3.2] when shore terminal back pressure is less than the pressure under [paragraph (b) opposite Annex paragraph 4.3.2]. (f) The COW system must be designed to meet the requirements of paragraph (e) with any one pump not operating. [The requirement to prohibit COW if the minimum supply pressure is not obtained is opposite Annex paragraph 7.3.]
4.4 Stripping System	
4.4.1 The design of the system for stripping crude oil from the bottom of every cargo tank shall be to the satisfaction of the Administration.	(a) Each tank vessel must have a stripping system that is designed to remove crude oil from each cargo tank at a rate of 1.25 times the rate at which all the COW machines operating simultaneously are spraying crude oil into the tank.
4.4.2 The design and capacity of the tank stripping system shall be such that the bottom of the tank being cleaned is kept free of accumulations of oil and sediment towards completion of the tank washing process.	(b) The COW stripping system must be designed to clean the bottom of the tank to allow the tank vessel to pass the inspection under [paragraph (a)(2) opposite Annex paragraph 4.2.10].
4.4.3 The stripping system shall be capable of removing oil at a rate of 1.25 times the total throughput of all the tank cleaning machines to be operated simultaneously when washing the bottom of the cargo tank(s) as described in the ship's Operations and Equipment Manual.	
4.4.4 Means such as level gauges, hand dipping, and stripping system performance gauges as referred to in paragraph 4.4.8 shall be provided for checking that the bottoms or cargo tanks are dry after the crude oil washing. Suitable arrangements for hand dipping must be provided at the	(c) Each cargo tank must be designed for sounding the dryness of the tank by hand dipping at the aftermost portion of the tank and three other locations.

aftermost portion of a cargo tank and in three other suitable locations. For the purpose of this paragraph "dry" means a small quantity of oil near the stripping suction with the tank dry everywhere else.	[In addition to the above, an operating requirement would be included to read as follows: The master shall ensure that, after each stripping operation is completed, each tank - (1) is examined by hand dipping at the four locations under [paragraph (c) opposite Annex paragraph 4.4.4]; and (2) contains no oil except a minimal quantity near the stripping suction.]
4.4.5 Means shall be provided to drain all cargo pumps and lines at the completion of cargo discharge, where necessary, by connexion to a stripping device. The line and pump drainings shall be capable of being discharged both to a cargo tank and ashore. For discharge ashore a special small diameter line shall be provided for that purpose and connected outboard of the ship's manifold valves.	[The requirements of Annex paragraph 4.4.5 are in proposed §157.11(d) and (e).]
4.4.6 The means for stripping oil from the cargo tanks shall be by positive displacement pump, self-priming contrifugal pump or eductor or other methods to the satisfaction of the Administration. Where a stripping line is connected to a number of tanks means shall be provided for isolating each tank not being stripped at that particular time.	(d) Each stripping system must have at least one of the following suction devices: (1) A positive displacement pump. (2) A self-priming centrifugal pump. (3) An eductor. (e) There must be a means in the stripping system piping between the suction device and each cargo tank to isolate each tank from the device.
4.4.7 The carriage of more than one grade of cargo shall not prevent crude oil washing of tanks.	[Annex paragraph 4.4.7 is proposed opposite Annex paragraph 4.3.4.]
4.4.8 Equipment shall be provided for monitoring the efficiency of the stripping system. All such equipment shall have remote read out facilities in the cargo control room or in some other safe and convenient place	(f) If the stripping system has a positive displacement pump or a self-priming centrifugal pump, the stripping system must have the following

easily accessible to the officer in charge of cargo and operations. Where a stripping pump is provided the monitoring equipment shall include either a flow indicator, or a stroke counter or revolution counter as appropriate, and pressure gauges at the inlet and discharge connexions of the pump or equivalent. Where eductors are provided the monitoring equipment shall include pressure gauges at the driving fluid intake and at the discharge and a pressure/vacuum gauge at the suction intake.

(f) In the stripping system piping -

(1) a pressure gauge at the inlet connection to the pump; and

(ii) a pressure gauge at the discharge connection to the pump.

(2) At least one of the following monitoring devices:

(i) Flow indicator.

(ii) Stroke counter.

(iii) Revolution counter.

(g) If the stripping system has an eductor, the stripping system must have -

(1) a pressure gauge at each driving fluid intake and at each discharge; and

(2) a pressure/vacuum gauge at each suction intake.

(h) The equipment required under paragraphs (f) and (g) of this section must have read-out devices in the cargo control room or other locations that are accepted by the Commandant.

4.4.9 The internal structure of the tank shall be such that drainage of oil to the tank suctions of the stripping system is satisfactory to meet the requirements of paragraphs 4.4.2 and 4.4.4. Care shall be taken that both longitudinal and transverse drainage is satisfactory and shall be verified during the inspection required by paragraphs 3.2 and 4.2.10.

(a) Each cargo tank must be designed for longitudinal and transverse drainage of crude oil to allow the tank vessel to pass the inspections under [paragraphs (a) and (b) opposite Annex paragraph 4.2.10].

4.4.10 The trim conditions for crude oil washing given in the Operations and Equipment Manual shall be adhered to. In general trim by the stern is only important during the final stages of tank discharge and shall be the maximum possible compatible with operational constraints, but in no case less than that recorded during the crude oil washing prior to the inspection required by paragraphs 3.2 and 4.2.10.

[An operating requirement would be added to read as follows:

The master shall ensure that during stripping operations the trim conditions as specified in the Crude Oil Washing Operation and Equipment Manual under [paragraph 11 opposite Annex paragraph 7.4(iii)] are met or exceeded.]

4.4.11 The stripping lines and associated fittings shall be in accordance with the requirements of paragraph 4.1.1.

[Annex paragraph 4.4.11 is proposed opposite Annex paragraph 4.1.1.]

4.5 Ballast lines

4.5.1 Where a separate ballast water system for ballasting cargo tanks is not provided the arrangement shall be such that the cargo pump, manifolds and pipes used for ballasting can be safely and effectively drained of oil before ballasting.

[The following paragraph would be included as an operating requirement in this proposed subpart to read as follows:

Before ballasting cargo tanks, the master shall ensure that -

(1) each cargo pump, manifold, and piping that is used for ballasting cargo tanks is drained of all crude oil; and

(2) the cargo piping that is used for ballasting cargo tanks is water washed.]

5. QUALIFICATION OF PERSONNEL

5.1 The training requirements of ships' personnel engaged in the crude oil washing of tankers shall be to the satisfaction of the Administration.

[Annex paragraph 5.1 is proposed in paragraph (a)(3)(ii) below.]

5.2 When a person such as the Master, the Chief Officer or the Cargo Control Officer assumes overall charge of a crude oil wash he shall:

(i) have at least one year's experience on oil tankers where his duties have included the discharge of cargo and associated crude washing. Where his duties have not included crude oil washing operations he shall have completed a training programme in crude oil washing in accordance with Appendix I to those Specifications and satisfactory to the Administration.

(ii) have participated at least twice in crude oil wash programmes one of which shall be in the particular ship for which he is required to undertake the responsibility of cargo discharge. Alternatively this latter participation may be acceptable if undertaken on a ship that is similar in all relevant respects; and

(iii) be fully knowledgable of the contents of the Operations and Equipment Manual.

(a) The master of a tank vessel under §157.10 and §157.10a(a)(2) shall ensure that the person in charge of each COW operation -

(1) knows the contents in the Coast Guard approved Crude Oil Washing Operation and Equipment Manual under §157.23;

(2) on at least two occasions, has participated in COW of cargo tanks, one of those occasions occurring on -

(i) the tank vessel on which the person assumes duties as the person in charge of COW operations; or

(ii) a tank vessel that is constructed from the same plans as the tank vessel on which the person assumes duties as the person in charge of COW operations; and

(3) in addition to meeting paragraphs (a)(1) and (2) of this section, has -

(i) 365 days or more of tank vessel duty that includes -

(A) crude oil discharge operation; and

(B) COW of cargo tanks; or

5.3 Where other nominated persons are intended to have particular responsibilities as defined in the Operations and Equipment Manual they shall have at least 6 month's experience on oil tankers where in the course of their duties they should have been involved in the cargo discharge operation. In addition they should have been instructed in the crude oil washing operation in the particular ship they are required to undertake this responsibility and by fully knowledgable of the contents of the Operations and Equipment Manual. Appendix II to those specifications should be used as guidance in establishing the content of such instruction.

(ii) completed a Coast Guard approved training program in COW cargo tanks (Standards of the Coast Guard approved training program to be proposed in a future Federal Register).

(a) The master of a tank vessel under §157.10 and §157.10a(a)(2) shall ensure that each member of the crew that participates in COW of cargo tanks -

(1) has 180 days or more of tank vessel duty that includes crude oil discharge operations;

(2) has been instructed in the COW operation of the vessel; and

(3) is familiar with the contents of the Coast Guard approved Crude Oil Washing Operation and Equipment Manual under §157.23.

6. OPERATIONS

6.1 Tankage to be Crude Oil Washed

Before departure on a ballast voyage, after the complete discharge of cargo, sufficient tanks shall have been crude oil washed, in accordance with the procedures specified in the Operations and Equipment Manual to ensure that:

(i) as a minimum, sufficient tanks have been washed to permit compliance with the draught and trim requirements of Regulation 13(2)(a), (b) and (c) of Annex I of the MARPOL Protocol during all phases of the ballast voyage; and

(ii) account is taken of the ship's trading pattern and the expected weather conditions so that additional ballast-water is not put into tanks which have not been crude oil washed.

(a) The master of a tank vessel under §157.10a(a)(2) shall ensure that -

(1) ballast water is only carried in a cargo tank that is crude oil washed during the most recent discharge of crude oil from that tank;

(2) before each ballast voyage a sufficient number of cargo tanks have been crude oil washed during the most recent discharge of crude oil from those tanks to allow ballast water to be carried in cargo tanks -

(i) with a total capacity to meet the draft and trim requirements in §157.10a(d)(1), (2), and (3); and

(ii) for the ship's trading pattern and expected weather conditions;

(3) for sludge control, at least 25 percent of the cargo tanks not used for carrying ballast water under paragraph (a)(2)(i) of this section are crude oil washed before each ballast voyage, and that each cargo tank is crude oil washed at least once in every four times crude oil is discharged from the tank, but no tank need be crude oil washed more than once during each 120 day period;

In addition to the tanks referred to in sub-paragraph (i) above, approximately one-quarter of all remaining tanks shall be crude oil washed for sludge control, but these additional tanks may include the tanks referred to in sub-paragraph (ii) above. However for sludge control purposes, no tank need be crude oil washed more than once in every four months. Crude oil washing shall not be conducted between the final discharge and loading ports, that is to say, no crude oil washing shall be undertaken during the ballast voyage. Ballast water shall not be put into tanks that have not been crude oil washed. Water that is put into a tank which has been crude oil washed but not water rinsed shall be regarded as dirty ballast.

(4) cargo tanks are not crude oil washed during a ballast voyage; and

(5) ballast water in a cargo tank that is crude oil washed but not water rinsed during the most recent discharge of crude oil from that tank is discharged in accordance with §157.37(a).

[See Appendix I "List of Changes when applying the Specifications to New Crude Oil Tankers of 20,000 tons deadweight and above."]

(a) The master of a tank vessel under §157.10 shall ensure that -

(1) ballast water is only carried in a cargo tank as allowed under §157.35;

(2) for sludge control, at least 25 percent of the cargo tanks are crude oil washed before each ballast voyage and that each cargo tank is crude oil washed at least once in every four times crude oil is discharged from the tank, but no tank need be crude oil washed more than once during each 120 day period;

(3) ballast water in a cargo tank that is crude oil washed but not water rinsed during the most recent discharge of crude oil from that tank is discharged in accordance with §157.37(a); and

(4) cargo tanks are not crude oil washed during a ballast voyage.

6.2 Drainage and Discharge Ashore of Cargo Lines

At the end of cargo discharge all cargo main and stripping lines shall be drained and stripped and the drainings and strippings passed to the shore via the special small diameter line required by paragraph 4.4.5.

(a) After each crude oil cargo discharge, the master shall ensure that each cargo main, stripping, and COW piping is drained of crude oi and the drainings are conveyed ashore through the piping under §157.11(d)(4) or §157.11(e)(3).

6.3 Filling of Departure Ballast Tanks

Care shall be taken at the completion of crude oil washing of any departure ballast tank to strip the tank as completely as possible. Where departure ballast is filled through cargo lines and pumps, these must be drained and stripped of oil as required by paragraph 4.4.5 before ballast is loaded.

[Annex paragraph 6.3 is proposed in the operating requirements opposite Annex 4.5.1 and 4.4.4].

6.4 Crude Oil Washing at Sea

All crude oil washing must be completed before the ship leaves its final port of discharge. Where any tank is crude oil washed while the ship is at sea between multiple discharge ports, the tank shall be left empty and available for inspection at the next discharge port before commencing the next ballast voyage. This inspection may consist of multiple sounding/dipping of the bottom of the tank when the tank is empty. Departure ballast tanks shall be ballasted prior to departure from port so that examination of the surface of the ballast water could be made. In the latter case the guidance given in sub-paragraph 4.2.10(ii) is relevant to the inspection.

(a) The master shall ensure that each cargo tank that is crude oil washed during a voyage other than a ballast voyage -

(1) remains empty so that the tank may be inspected upon arrival at the next discharge port; and

(2) that is to be used for ballasting, is ballasted before the vessel departs from that discharge port so that the tank may be inspected to determine compliance with [paragraph (a)(2) opposite Annex paragraph 4.2.10].

6.5 Discharge of Oily Water Effluents on Ballast Voyage

The discharge of departure ballast and any other water effluent discharged during the ballast voyage shall comply with the requirements of Regulation 9 of Annex I of the MARPOL Protocol.

[The requirement of Annex paragraph 6.5 is included in §157.37.]

6.6 Use and Control of Inert Gas

On ships to which these Specifications apply, no tank shall be crude oil washed unless the inert gas system required by Regulation 13B(3) of Annex I of the MARPOL Protocol is in proper operation. Before

(a) The master shall ensure the following:

(1) Before a cargo tank is crude oil washed, the oxygen content in the tank is measured to determine whether or not it is 8 percent or less by

each tank is crude oil washed, the oxygen level shall be determined at a point 1 metre from the deck and at the middle region of the ullage space and neither of these determinations shall exceed 8 per cent by volume. Where tanks have complete or partial wash bulkheads, the determinations should be taken from similar levels in each section of the tank. The oxygen level of the inert gas being delivered during the washing process shall be continuously monitored. If during crude oil washing:

(i) the oxygen level of the inert gas being delivered exceeds 8 per cent by volume; or

(ii) the pressure of the atmosphere at the tanks is no longer positive, then the washing must be stopped until satisfactory conditions are restored.

volume at locations in the tank -

(1) one meter from the deck

(ii) in the center of the ullage space.

(2) For tanks with partial bulkheads, paragraph (a)(1) of this section applies to each section formed by the partial bulkhead.

(3) No cargo tank is crude oil washed unless the oxygen content is 8 percent or less by volume at the locations under paragraph (a)(1) of this section.

(4) No cargo tank is crude oil washed unless the inert gas system under 46 CFR Subpart 32.53 -

(i) is supplying the cargo tank with a gas or a mixture of gases that has an oxygen content of 8 percent or less by volume; and

(ii) maintains a positive atmospheric pressure in the cargo tank.

(5) During COW operations, a crew member monitors the instrumentation under 46 CFR 32.53-60(a)(1) for the oxygen content of the gas or mixture of gases being delivered to the cargo tank.

(b) If the inert gas system does not meet paragraph (a)(4) of this section, the master shall terminate COW of the cargo tank and not resume COW until the requirements of paragraph (a) of this section are met.

6.7 Precautions against Electrostatic Generation

To avoid excessive electrostatic generation in the washing process due to the presence of water in the crude oil washing fluid, any tank to be used as a source of crude oil washing fluid must first be discharged by at least 1 meter before being so used. Any tank used as a slop tank on the previous ballast voyage shall be completely discharged and refilled with dry crude if that tank is to be used as a source of washing fluid.

(a) Before COW any cargo tank, the master shall ensure that the level in each cargo tank with crude oil that is used as a source for COW is lowered at least one meter.

(b) The master shall ensure that a tank last used as a slop tank is not used as a source for COW until -

(1) its contents are discharged ashore or to another tank; and

(2) the tank contains only crude oil.

6.8 Vapour Emission

On ships to which these Specifications apply there shall be means to avoid vapor emission during the filling of departure ballast wherever local conditions require it. The method of preventing the emission of hydrocarbon vapour into the atmosphere shall be:

(a) by the use of permanent ballast tanks wherever these are sufficient to provide the minimum departure draught; or

(b) by the containment in empty cargo tanks by the simultaneous ballasting and cargo discharge.

Alternative methods to the satisfaction of the Administrations may be accepted provided an equivalent degree of environmental protection is provided.

(a) In order to meet the National primary and secondary ambient air quality standards under 40 CFR Part 50, issued under the Clean Air Act, as amended (42 U.S.C. 1857), the master of a tank vessel under §157.10a(a)(2) without sufficient segregated ballast tanks or dedicated clean ballast tanks to allow the vessel to depart from each U.S. port without ballasting cargo tanks may not ballast cargo tanks unless the hydrocarbon vapor in those tanks are discharged by the means under [design requirement opposite Annex paragraph 6.8] to a cargo tank that is discharging crude oil.

[A design requirement would be added to read as follows:

(a) Each tank vessel under §157.10a(a)(2) without sufficient segregated ballast tanks or dedicated clean ballast tanks to allow the vessel to depart from each U.S. port without ballasting cargo tanks must have a means to discharge hydrocarbon vapors from each cargo tank that is to be ballasted to a cargo tank that is discharging crude oil.]

7. OPERATIONS AND EQUIPMENT MANUAL

The Operations and Equipment Manual must be to the satisfaction of the Administration and shall contain the following information and operational instructions:

[Paragraphs (d) and (e) would be added to §157.23 to read as follows:

§157.23 Cargo and ballast system information.

* * * * *

(d) Each tank vessel under §157.10 and §157.10a(a)(2) must have a manual entitled Crude Oil Washing Operation and Equipment Manual approved

by the Coast Guard or the government of the vessel's flag state that includes the information under [paragraph (a) opposite Annex paragraph 7.1].

(e) [Procedures for submittal and approval similar to that contained in 46 CFR Subpart 50.20 and in 43 FR 49440 would appear here.]

(a) Each manual under [paragraph (d) opposite Annex paragraph 7] must include the following:

7.1 The complete text of the "Specifications for the Design, Operation and Control of Crude Oil Washing Systems."

(1) The text of the Annex of Resolution 15 of the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, 1973, done at London on February 17, 1978.

7.2 A line drawing of the crude oil washing system showing the respective position of pumps, lines and washing machines which relates to the crude oil washing system.

(2) A line drawing of the COW system showing the locations of pumps, piping, and COW machines.

7.3 A description of the system and a listing of procedures for checking that equipment is working properly during crude oil washing operations. This shall include a listing of the system and equipment parameters to be monitored, such as line pressure, oxygen level, machine revolutions, duration of cycles, etc. The established values for these parameters shall be included. The results of the tests carried out in accordance with paragraph 4.2.10 and the values of all parameters monitored during such tests shall also be included.

(3) A description of the COW system.

(4) The procedure for the inspection of the COW system during COW operations.

(5) A list of design characteristics of the COW system that includes as least the following:

(i) Pressure and flow of the crude oil pumped to the COW machines.

(ii) Revolutions, number of cycles, and length of cycles of each COW machine.

(iii) Pressure and flow of the stripping suction device.

(iv) Number and location of COW machines operating simultaneously in each cargo tank.

(6) The design oxygen content of the gas or mixture of gases that is supplied by the inert gas system to each cargo tank.

(7) The results recorded when passing the inspections under [paragraphs (a) and (b) opposite Annex paragraph 4.2.10].

(8) A list of characteristics of the COW system recorded during the COW operations when passing the inspections under [paragraphs (a) and (b) opposite Annex paragraph 4.2.10] that includes at least the following:

(i) Pressure and flow of the crude oil pumped to the COW machines.

(ii) Revolutions, number of cycles, and length of cycles of each COW machine.

(iii) Pressure and flow of the stripping suction device.

(iv) Number and location of COW machines operating simultaneously in each cargo tank.

(9) The oxygen content of the gas or mixture of gases that is supplied by the inert gas system to each cargo tank during COW operations when passing the inspections under [paragraph (a) opposite Annex paragraph 4.2.10].

(10) The volume of water used for water rinsing during COW operations when passing the inspection under [paragraph (b) opposite Annex paragraph 4.2.10].

(11) The trim conditions of the tank vessel during COW operations when passing the inspections under [paragraphs (a) and (b) opposite Annex paragraph 4.2.10].

[Operating requirements would be added to read as follows:

(a) The master shall record the following characteristics in the Coast Guard approved Crude Oil Washing Operation and Equipment Manual during COW operations when passing the inspections under paragraphs (a) and (b) opposite Annex paragraph 4.2.10]:

(1) Pressure and flow of the crude oil pumped to the COW machines.

(2) Revolutions, number of cycles, and length of cycles of each COW machine.

(3) Pressure and flow of the stripping suction device.

(4) Number and location of COW machines operating simultaneously in each cargo tank.

(5) Volume of water used for water rinsing.

(6) Trim conditions of the tank vessel.

(7) Results of the inspections under [paragraphs (a) and (b) opposite Annex paragraph 4.2.10].

(8) Oxygen content of the gas or mixture of gases that is supplied by the inert gas system to each cargo tank.

(b) The master shall ensure that during COW operations the characteristics as recorded in the Coast Guard approved Crude Oil Washing Operation and Equipment Manual under paragraph (a) of this section are met.

(c) The master shall ensure that no person operates the COW system of each tank vessel that is issued a letter under [paragraph (c) opposite Annex paragraph 4.2.10] if the characteristics are less than the recorded characteristics under [paragraphs (a)(8), (10), and (11) opposite Annex paragraph 7.3] unless –

(1) the tank vessel passes the inspections under [paragraphs (a) and (b) opposite Annex paragraph 4.2.10] with the new characteristics;

(2) the characteristics used to pass the inspections are recorded in the Coast Guard approved Crude Oil Washing Operation and Equipment Manual; and

(3) the Coast Guard issues to the tank vessel a new letter that states that the vessel complies with this subpart.]

7.4 Details of the requirements of Section 6 of these Specifications together with advice and instructions, where appropriate, in meeting these requirements such as:	(b) In addition to the information under paragraph (a) of this section, each manual under [paragraph (d) opposite Annex paragraph 7] on a vessel under §157.10a(a)(2) must include the following:
(i) Recommended methods and programmes of crude oil washing in order to accord with all forseeable circumstances of cargo discharge restraints and in obtaining maximum trim during the completion of washing and draining of each tank.	[The procedure for COW cargo tanks is included in paragraph (a) (14) opposite Annex paragraph 7.4(v).]
(ii) The procedure on ships to avoid vapour emission in accordance with paragraph 6.8.	(1) The procedure to meet [paragraph (a) opposite Annex paragraph 6.8]. (2) The procedure for water washing the cargo piping that is used for ballasting cargo tanks.
	[The following is a continuation of requirements under proposed paragraph (a) of this section.]
(iii) The method of draining tanks which shall include information on optimum trim conditions as required by paragraph 4.4.10.	(12) The procedure for stripping cargo tanks of crude oil.
(iv) The method of draining cargo pumps, cargo lines, crude oil washing lines and stripping lines, and spaces into which they may be drained, together with the final discharge ashore via the small discharge line on completion of discharge.	(13) The procedure for draining and stripping the pumps and piping of the COW system, cargo system, and stripping system after each crude oil cargo discharge.
(v) Typical washing programmes under various conditions of loading specifying:	(14) The procedure for COW cargo tanks that includes at least the following:
(1) the tanks to be washed in accordance with paragraph 6.1;	(i) The tanks to be washed to meet [paragraphs opposite Annex paragraph 6.1 (§157.10a) or 6.1 (§157.10)].
(2) the method for washing each tank, that is single or multi-stage;	

(3) the number of tank washing machines to be used simultaneously;	(ii) The order in which those tanks are washed.
	(iii) The method of washing each tank (single or multi-stage).
(4) the duration of the crude oil wash and water rinse where the latter is appropriate;	(iv) The number of COW machines that are operated simultaneously.
	(v) The duration of the crude oil wash and water rinse.
(5) the volume of water used for water rinse, which shall be at least equal to that used in the water rinse prior to the inspection required by paragraphs 3.2 and 4.2.10; and	(vi) The volume of water to be used for water rinse in each tank.
(6) the preferred order in which the tanks are to be washed.	
(vi) The procedure for draining and stripping, where appropriate, cargo lines and pumps before being used for the loading of departure ballast.	[Annex paragraph 7.4(vi) is included in paragraph (a)(13) of this proposed section.]
(vii) The procedure for water washing lines before discharge of departure ballast and the loading and final discharge of arrival ballast.	[Annex paragraph 7.4(vii) is included in proposed paragraph (b)(2) opposite Annex paragraph 7.4(ii)].
(viii) The procedure for verifying by sound patterns that bottom mounted machines are operating shall be carried out towards the end of the wash cycle for each tank. When carrying out such verification all other machines shall be shut down as necessary.	(15) The procedures to meet [paragraphs opposite Annex paragraph 4.2.13].
(ix) Precise details of procedure to ensure compliance with Regulation 9 of Annex I of the MARPOL Protocol in the discharge of departure ballast, the water flushing of lines and the decanting of the slop tank(s) at sea.	[Annex paragraph 7.4(ix) is included in proposed paragraph (a)(22) opposite Annex paragraph 7.9.]
7.5 The dangers of leakage from the crude oil washing system and the precautions necessary to prevent leakage and the action to be taken in the event of a leakage. Guidance shall be given on how the crude oil	(16) The procedures and equipment needed to prevent leakage of crude oil from the COW system.

washing system is to be operationally tested for leakage before each discharge.	(17) The procedures and equipment needed if leakage of crude oil from the COW system occurs. (18) The procedure for testing and inspecting the COW system for leakage of crude oil before operating the system.
7.6 The method of excluding oil from the engine room through steam heaters as required by paragraph 4.1.6.	(19) The procedures and equipment needed to prevent leakage of crude oil from the steam heater under [paragraph (i) opposite Annex paragraph 4.1.6] to the engine room.
7.7 The personnel required at all times to conduct the dual operation of discharging cargo and crude oil washing. The numbers of such personnel shall include: (i) the person meeting the requirements of paragraph 5.2 who will have overall control of the crude oil washing process; (ii) those person meeting the requirements of paragraph 5.3 who will be expected to undertake the actual operation; and (iii) at least one person on deck at all times during washing to keep watch for leaks and malfunctioning of equipment, to test the oxygen content of tanks before washing, to check tank atmosphere pressure, to sound tank bottoms if required, to lift ullage floats if necessary and to change drive units when this is necessary. The duties of such persons are not necessarily mutually exclusive.	(20) The number of crew members needed to conduct the discharge of cargo, the COW of cargo tanks, and both operations simultaneously. (21) A description of the duties of each crew member under paragraph (a)(20) of this section. [An operating requirement would be added to read as follows: During COW operations the master shall ensure that at least one crew member who meets the requirements under [paragraph (a) opposite Annex paragraph 5.3] is on the main deck at all times.
7.8 An effective means of communications between the watchkeeper on deck and the cargo control position so that in the event of a leak in or malfunctioning of the crude oil washing system the washing may be stopped as soon as possible.	[The following paragraph would be added under the equipment requirements of this subpart: Each tank vessel must have a means that enables two-way voice

	communication between the crew member on the main deck required under [operating requirement opposite Annex paragraph 7.7] and each cargo discharge control station.]
7.9 The typical procedures for ballasting.	(22) The procedures for ballasting and deballasting cargo tanks.
7.10 A pre-crude oil wash operational checklist for the use of the crew at each discharge which shall include the checking and calibration of all instruments.	(23) The step by step procedure for the inspection of the COW system before COW operations begin that includes the procedure for inspecting and calibrating each instrument.
7.11 The recommended intervals for on board inspection and maintenance of crude oil washing equipment in addition to statutory surveys. Reference should be made to technical manuals supplied by the manufacturers of the equipment.	(24) The intervals for on board inspection and maintenance of the COW equipment. Informational references to technical manuals supplied by the manufacturers may be included.
7.12 A list of crude oils unsuitable for the crude oil washing process and their origin.	(25) A list of crude oils that are not to be used in the COW operation.

APPENDIX I

LIST OF CHANGES WHEN APPLYING THE SPECIFICATIONS TO NEW CRUDE OIL TANKERS OF 20,000 TONS DEADWEIGHT AND ABOVE

[The requirements of Appendix I are included in the preceding proposal.]

Paragraph Number	List of Changes
4.2.5	This paragraph is not applicable
4.2.10	Sub-paragraph (iii) is not applicable

6.1 Replace by the following:

6.1.1 Before departure on a ballast voyage:

(i) approximately one quarter of the cargo tanks shall be crude oil washed for sludge control purposes on a rotational basis and in accordance with the procedures specified in the Operations and Equipment Manual. However, for these purposes, no tank need be crude oil washed more than once in every four months; and

(ii) if it is considered that additional ballast in a cargo tank or tanks may be required during the ballast voyages under the conditions and provisions specified in Regulation 13(3) Annex I of the MARPOL Protocol. the tank or tanks which may be used for this ballast shall be crude oil washed in accordance with the procedures specified in the Operations and Equipment Manual.

6.1.2 Ballast water shall not be put into cargo tanks that have not been crude oil washed. Water that is put into a tank which has been crude oil washed but not water rinsed shall be regarded as dirty ballast.

6.1.3 Crude oil washing shall not be conducted between the final discharge and loading ports; that is to say no crude oil washing shall be undertaken during the ballast voyage.

6.3 Replace by the following:

6.3 Filling of Additional Ballasting Cargo Tanks

Care shall be taken at the completion of crude oil washing of any cargo tank that might contain ballast to strip the tank as completely as possible. Where this ballast is filled through cargo lines and pumps, these must be drained and stripped of oil as required by paragraph 4.4.5.

6.4 The last two sentences are not applicable.

6.5 Replace by the following:

6.5 Discharge of Oily Water Effuents on Ballast Voyage

The discharge of additional ballast from cargo tanks and any other water effluent discharged during the ballast voyage shall comply with the requirements of Regulation 9 of Annex I of the MARPOL Protocol.

6.8 This paragraph is not applicable.

7.4 This paragraph is not applicable.

APPENDIX II

TRAINING FOR PERSONS INTENDED TO ASSUME OVERALL CHARGE OF CRUDE OIL WASHING

[It is proposed to include the crew training requirements of Appendix II in a document to be published in a future issue of the Federal Register.]

INTRODUCTION

Any required training shall be by supervised instruction, conducted in a shore-based facility or aboard a suitably equipped ship having training facilities and instructors for this purpose, dealing with the principles involved and the application of these principles to ship operation.

In drawing up an Administration-approved syllabus of training, the Specifications for the Design, Operation and Control of Crude Oil Washing Systems of tankers adopted by the Conference shall be taken into account.

Such training shall include but not necessarily be limited to:

(a) An introduction to the principles of Crude Oil Washing which shall include:

- the characteristics of crude oil as a washing fluid and its contrast with water washing;
- top washing;
- bottom washing;
- trim requirements;
- methods of bleeding off from the cargo discharge;
- maintenance of required washing fluid pressure;
- washing at sea between discharge ports;
- recirculatory washing;
- relative priorities and requirements for the departure ballast tanks, arrival ballast tanks and cargo only tanks;

(b) Equipment and Design

(i) Location of washing machines;

(ii) Washing machines, deck mounted and submerged:

- types;
- characteristics;
- features of construction;
- operating parameters;

(iii) Drive units;

(iv) Washing fluid supply and distribution systems;

(v) Stripping systems;

(vi) Means of sound tanks;

(vii) Inert gas requirements;

(c) Generalized Crude Oil Washing procedures

(i) Traditional pipeline ship/free flow ship/partial free flow ship;

(ii) Single/multi parcel cargoes;

(iii) Optimization of procedure to wash with minimum extra berth time;

(iv) Ballasting for departure with various ship and pipeline configurations;

(v) Procedure for washing at sea between discharge ports.

(d) Associated Procedure

(i) Means for minimizing residues on board

- Stripping of cargo tanks;

- Draining and stripping of cargo lines;

- Final discharge of cargo ashore;

(ii) Water rinsing of arrival ballast tanks;

(iii) Filling and ultimate discharge of arrival ballast;

(iv) Discharge of departure ballast;

(v) Build-up and decanting of slop tank;

(vi) Requirements of Regulation 9 of Annex I of the MARPOL Protocol;

(vii) Avoidance of venting in port during ballasting operations.

(e) Safety

(i) Inert gas procedure;

(ii) Maintenance and monitoring of inert gas quality and pressure;

(iii) Stopping of washing/discharge under abnormal inert gas conditions;

(iv) Electrostatic generation and the precautions required to avoid it;

(v) Pipework integrity;

(vi) Avoidance of surge pressures;

(vii) Spillage.

(f) Check Lists

(i) Before entering port;

(ii) Before commencing crude oil washing;

(iii) After crude oil washing;

(iv) After sailing.

(g) Regulatory Enforcement Procedures

(i) Operations and Equipment Manual;

(ii) Oil Record Book;

(iii) Sounding of tanks;

(iv) Measurement of oil on top of departure ballast.

(h) Maintenance of Plant and Equipment

(i) Maintenance of equipment in accordance with manufacturers' instructions;

(ii) Additional maintenance items.

Administrations shall ensure that the training facility issue an appropriate document to those qualified in accordance with Appendix to serve as an officer primarily responsible for crude oil washing.

(R.S. 4417a, as amended by Sec. 5, Pub. L. 95-474 (46 U.S.C. 391a); 49 CFR 1.46(n)(4))

Dated: February 5, 1979.

R. H. SCARBOROUGH,
Vice Admiral, U.S. Coast Guard,
Acting Commandant.

[FR Doc. 79-4512 Filed 2-9-79; 8:45 am]

[4910-14-M]

[33 CFR Part 164]

[CGD 77-063]

TANK VESSELS OF 10,000 GROSS TONS OR MORE

Improved Steering Gear Standards

AGENCY: Coast Guard, DOT.

ACTION: Proposed rules; withdrawal of previous proposal.

SUMMARY: The Coast Guard proposes to adopt improved steering gear standards for tank vessels of 10,000 gross tons or more. These proposals are essentially the same as the steering gear standards adopted by the 1978 International Conference on Tanker Safety and Pollution Prevention. Adoption of the regulations in this proposal would reduce the probability of collision and grounding of tankers caused by steering failure and, as a result, would reduce the risk of property damage, personal injury and death, and pollution of the oceans and U.S. waters. The regulations would apply both to U.S. tank vessels and to foreign tank vessels that call at U.S. ports.

This notice of proposed rule making also withdraws a previous Coast Guard proposal to imporve steering gear standards. The previous proposal was published in the FEDERAL REGISTER of May 16, 1977.

DATES: 1. Comments on these proposed regulations must be received on or before: April 16, 1979.

2. Public hearing: The Coast Guard will hold public hearings on March 21, 1979 and March 28, 1979.

ADDRESSES: 1. Comments should be submitted to Commandant (G-CMC/81) (CGD 77-063), U.S. Coast Guard, Washington, D.C. 20590.

2. The hearings will be held at the following locations:

a. March 21, 1979, Room 2230, 400 7th Street S.W., Washington, D.C. 20590, Starting at 9:30 a.m.

b. March 28, 1979, Jack Tar Hotel, Garden Room, Van Ness at Geary, San Francisco, CA. 94101, Starting at 9:30 a.m.

3. The following are available for examination at the Marine Safety Council (G-CMC/81), Room 8117, Department of Transportation, Nassif Building, 400 Seventh Street S.W., Washington, D.C. 20590:

a. Comments received on the proposed regulations.

b. Protocol of 1978 Relating to the International Convention For the Safety of Life at Sea, 1974. (This protocol contains, among other things, the requirements for steering gear that were adopted by the International Conference on Tanker Safety and Pollution Prevention.)

c. Draft Regulatory Analysis for CGD 77-063 and related projects.

d. Coast Guard notice of proposed rule making of May 16, 1977, on improved steering standards for oil tankers.

e. Comments received on the notice of proposed rule making of May 16, 1977.

FOR FURTHER INFORMATION CONTACT:

Commander Robert G. Williams, Office of Merchant Marine Safety (G-MMT/83), Room 8221, U.S. Coast Guard, Department of Transportation, Nassif Building, 400 Seventh Street, S.W., Washington, D.C. 20590 (202-426-2206).

SUPPLEMENTARY INFORMATION: 1. Interested persons are invited to participate in this proposed rule making by submitting written views, data, or arguments. Persons submitting comments should include their names and addresses, identify this notice (CGD 77-063) and the specific section of the proposed regulations to which their comments apply, and give reasons for the comments. The regulations may be changed in light of comments received. All comments received before the expiration of the public comment period will be considered before final action is taken on these proposed regulations.

2. Interested persons are invited to attend the public hearings and present oral or written statements on the proposed regulations. It is requested that persons desiring to submit comments at a hearing notify the Executive Secretary of the Marine Safety Council (202-426-1477) at least 10 days before the scheduled date of the hearing and specify the approximate length of time needed for the presentation. It is urged that a written summary or copy of the oral presentation be included with the notification.

DRAFTING INFORMATION

The principal persons involved in drafting these proposed regulations are: Gordon Sims, Office of Merchant Marine Safety, and William R. Register, Office of the Chief Counsel.

BACKGROUND

1. During the winter of 1976-77, several tanker casualties occurred in or near U.S. waters. These casualties demonstrated the need for a global effort to improve the level of safety of tank vessels and to decrease their pollution potential. The President in his message to Congress of March 17, 1977, proposed a series of initiatives to be taken both nationally and internationally. These initiatives were broad in scope and included, among several things, a proposal to improve steering standards on oil tankers.

2. Based upon the Presidential initiatives, the Coast Guard published proposed rules for improving steering standards in the FEDERAL REGISTER on May 16, 1977 (42 FR 24869-71). The proposed rules contained requirements for oil tankers of 20,000 deadweight tons or more to have the following:

(a) A steering failure alarm that would activate upon rudder malfunction.

(b) The capability to recover rudder control within 45 seconds after failure of the steering gear control system in use.

The proposed regulations further provided that the capability for recovering rudder control could consist of either the following combinations of equipment and procedures:

(c) Two separate and independent steering gear control systems that have separate differential control units, and established procedures for operating the equipment.

(d) Procedures and associated equipment for manning steering gear spaces and emergency steering stations as necessary to recover rudder control within the prescribed time.

3. More than 130 comments were received on the May 16, 1977 notice of proposed rule making. Most comments were favorable, although some commenters also recommended additional requirements or asked questions concerning the meaning of particular provisions. The public comment period on the May 16, 1977 notice closed on November 15, 1977. Because of subsequent international developments discussed in the following paragraphs, however, a determination has been made not to finalize the proposed rules. Accordingly, the May 16, 1977 notice is withdrawn.

4. In February 1978, an International Conference on Tanker Safety and Pollution Prevention (TSPP) was held under the auspices of the Intergovernmental Maritime Consultative Organization (IMCO). The United States participated in this Conference. The Conference considered and adopted, among several items, requirements relating to control, communication, testing, and local operation of steering gear for tank vessels of 10,000 gross tons or more. Several of the TSPP requirements are based upon recommendations in IMCO Resolution A-325(IX) of November 12, 1975, entitled "Recommendation Concerning Regulations for Machinery and Electrical Installations in Passenger and Cargo Ships."

5. The principal TSPP requirements for steering gear are as follows:

a. All tankers of 10,000 gross tons and above must have two remote steering gear control systems, each operable separately from the navigating bridge.

b. The main steering gear of new tankers of 10,000 gross tons and above must have two or more identical power units, and must be capable to operating with one or more of these power units.

The TSPP requirements, and the proposed rules in this notice, do not include the proposed rules in the May 16, 1977 notice concerning (i) the steering failure alarm described in that notice, (ii) two separate differential control units, and (iii) manning of steering gear spaces. These three provisions are discussed as alternatives in the Draft Regulatory Analysis. As explained in the draft analysis, designing or retrofitting vessels in order to provide for a second differential control unit would be extremely difficult and could possibly result in control systems that are less reliable than existing systems. Also, there was a lack of support at the TSPP Conference for imposing a manning requirement (primarily because enforcing the requirement would be difficult) and a requirement to have the steering failure alarm was not adopted on the basis that use of the alarm would be no more effective than an independent rudder angle indicator. The Coast Guard in separate rule making, however, is preparing regulations that would require most new U.S. vessels to have a steering failure alarm.

6. On April 20, 1978, the Coast Guard published a notice in the FEDERAL REGISTER (42 FR 16886-16891) of a plan to implement the agreements reached at the TSPP Conference. The target dates for implementing the plan were recently updated in a notice issued in the FEDERAL REGISTER of September 21, 1978 (43 FR 42833-34). The proposals in this notice of proposed rule making are issued in accordance with that plan, and they adopt, with minor modification, the substance of the TSPP requirements. The proposals also implement Section 5 of the Port and Tanker Safety Act of 1978 (PTSA) which requires, among other things, that the minimum steering gear standards set out in that Act be adopted as U.S. regulations. Section 5 PTSA revises existing provisions in, and adds new provisions to, R.S. 4417a (46 U.S.C. 391a). The minimum steering gear standards in PTSA are essentially the same as corresponding TSPP requirements.

DISCUSSION OF PROPOSED REGULATIONS

1. Several TSPP requirements adopted as proposals in this rule making are the same as or similar to other existing Coast Guard regulations. Table I below shows which of the proposed regulations are new and which are comparable to existing Coast Guard regulations. Vessels in compliance with the existing regulations in Table I would also comply with the comparable proposed regulations and TSPP requirements. The Coast Guard intends, as a part of the ongoing effort to review and revise existing Coast Guard regulations, to remove redundant requirements from the regulations in Table I.

TABLE I

Proposed regulations	Comparable existing regulations in Title 33 and Title 46, CFR
1. § 164.39(a)	1. New.
2. § 164.39(b)(1)	2. 46 CFR 30.10-69 and 33 CFR 157.03(v).
3. § 164.39(b)(2) through (b)(8)	3. New.
4. § 164.39(c)	4. 46 CFR 58.25-55(a).
5. § 164.39(d)(1)	5. 46 CFR 58.25-55(b)(2).
6. § 164.39(d)(2)	6. 46 CFR 111.80-70(e).
7. § 164.39(d)(3)	7. New.
8. § 164.39(e)	8. New.
9. § 164.39(f)(1)	9. New.
10. § 164.39(f)(2)	10. 46 CFR 111.80-70(e).
11. § 164.39(f)(3)	11. 46 CFR 113.30-5.
12. § 164.39(f)(4)	12. 46 CFR 58.25-5(d), 46 CFR 113.40, and 33 CFR 164.35(f).
13. § 164.39(f)(5)	13. New.
14. § 164.39(g)(1)	14. 46 CFR 58.25-25.
15. § 164.39(g)(2)	15. New.
16. § 164.39(g)(3)	16. 46 CFR 58.25-10(a).
17. § 164.39(h)(1)	17. 46 CFR 58.25-25, except the reference to proposed § 164.39(g)(2).
18. § 164.39(h)(2)	18. 46 CFR 58.25-10(a).
19. § 164.39(i)	19. New.
20. § 164.39(j)(1)(i)	20. New.
21. § 164.39(j)(1)(ii)	21. 46 CFR 111.80-70(d)(2) and (3).
22. § 164.39(j)(2)	22. New.
23. § 164.39(k) through (u)	23. New.

2. The proposed revisions to § 164.01(a) add a reference to the foreign vessel exception in proposed § 164.02, and a reference to the differing applicability of proposed § 164.39. Proposed § 164.02 is new. This section restates the foreign vessel exception in Section 2 of PTSA, which is the new legal authority for the regulations in 33 CFR Part 164.

3. As provided in proposed § 164.39(a)(1) and (a)(2)(i), the regulations in this notice of proposed rule making would apply to tank vessels of 10,000 gross tons or more that are documented under the laws of the United States (U.S. vessels), or that call at a port or place subject to the jurisdiction of the United States (foreign vessels). As further provided in proposed § 164.39(a)(2)(ii), the regulations would also apply to certain other foreign vessels that operate in U.S. navigable waters. The exceptions for public vessels in proposed § 164.39(a) is also contained in Section 5 of PTSA. It is emphasized that the proposals would apply to both oil tankers and tankers carrying other types of hazardous liquid cargo in bulk.

4. The definition in § 164.39(b) are essentially the same as corresponding definitions in Section 5 of PTSA and the TSPP requirements. The TSPP requirements also adopt the concept of "maximum service speed." This term is defined in IMCO Resolution A.325(IX) and is included in the proposed regulations as § 164.39(b)(8).

5. As mentioned previously, the principal requirements adopted by the TSPP Conference include the requirement to have two remote steering gear control systems and the requirement to have two or more identical steering gear power units. These requirements are in proposed § 164.39 (c), (d), (g), and (h).

6. Proposed § 164.39(g)(3) provides that each new foreign tank vessel must have a main steering gear that can, while operating with one or more power units, move the rudder as required by that regulation. The TSPP requirements contain this same provision. Proposed § 164.39(h)(2) also adopts this provision for new U.S. tank vessels, except in one respect. Proposed § 164.39(h)(2) requires that only one steering gear power unit may be used to comply with that regulation and, thus, imposes a more rigorous standard than the corresponding standard in proposed § 164.39(g)(3). However, current practice in design and construction of U.S. tank vessels is to provide steering gear power units that would meet proposed § 164.39(h)(2).

7. Proposed § 164.39(k) requires that the power supply of at least one steering gear power unit on a new tank vessel, and its associated remote steering gear control system, be the vessel's main source of electrical power. Although the TSPP provisions do not contain a similar requirement, current practice in design and construction of tank vessels is to supply steering gear power units from the main source of electrical power. Proposed § 164.39(k) has been included to ensure that on a new tank vessel the alternative source of power required by proposed § 164.39(l) will not be the sole source of electrical power to the steering gear installation.

8. The effective date in proposed § 164.39(u) and the postponed compliance date in proposed § 164.39(s) for existing tank vessels would be the target dates recommended by the TSPP Conference. The Coast Guard gave notice of the intention to adopt these dates in the Regulatory Implementation Plan published in the FEDERAL REGISTER of April 20, 1978 (43 FR 16886-16891).

9. To the maximum extent possible, the wording used in the TSPP requirements has been retained in the proposed regulations. Also the proposed regulations are arranged, as much as possible, in the same order as the TSPP requirements to facilitate comparing one set of requirements with the other.

10. The proposed regulations do not contain most of the TSPP requirements for testing steering equipment. These requirements are already covered, although not in as much detail, in 33 CFR 164.11(q) and 164.25. The TSPP requirements for drills and operation of steering equipment, and the TSPP testing requirement that is not already in 33 CFR Part 164, are included in the proposed rules as § 164.39 (o) through (r).

REGULATORY ANALYSIS

1. A Draft Regulatory Analysis has been prepared for these proposed regulations in accordance with Department of Transportation Notice 78-1 entitled "Improving Government Regulations" (43 FR 9582-9584). The analysis was conducted in conjunction with the other TSPP regulatory projects proposed in this issue of the FEDERAL REGISTER.

2. The draft analysis discusses the economic impact of the proposed rules as follows:

The cost of the improved steering requirement is a one-time cost that, for the most part, is independent of vessel size. The cost of the second steering gear control system and required alarm on existing vessels is estimated to be approximately $30,000 per vessel. It is estimated that approximately 40 percent of the foreign vessels entering U.S. ports and 30 percent of U.S. flag vessels will require another steering gear control system. Further, it is estimated that 90 percent of the foreign flag vessels and 70 percent of the U.S. flag vessels will need the additional alarm and/or circuit arrangement modifications * * *.

Most of the economic impact will be on existing tank vessels since, as explained in the draft analysis, few new tank vessels are expected to be built within the next five years. The number of existing tank vessels that would have to comply with the steering gear regulations is approximately 1,650. The total capital cost for existing vessels is expected to be approximately $20,000,000.

3. The ultimate benefits and impact of the regulations would be a reduction in the probability of collision and grounding of tankers caused by steering failure and a resulting reduction in risk of property damage, personal injury and death, and pollution of the oceans and U.S. waters.

In consideration of the foregoing, the Coast Guard proposed to amend Part 164 of Title 33, Code of Federal Regulations, as follows:

PART 164—TANK VESSELS OF 10,000 GROSS TONS OR MORE

1. By revising the authority citation for Part 164 to read as follows:

AUTHORITY: Sec. 2, Port and Tanker Safety Act of 1978 (Pub. L. 95-474); 49 CFR 1.46(n)(4), except as otherwise noted.

2. By revising § 164.01 to read as follows:

§ 164.01 Applicability.

(a) This part (except § 164.39) applies to each self-propelled vessel of 1600 or more gross tons (except foreign vessels described in § 164.02) when it is operating in the navigable waters of the United States (except the Panama Canal or St. Lawrence Seaway).

3. By adding a new § 164.02 to read as follows:

§ 164.02 Applicability exception for foreign vessels.

(a) This part (including § 164.39) does not apply to foreign vessels that—

(1) Are not destined for, or departing from, a port or place subject to the jurisdiction of the United States; and

(2) Are in—

(i) Innocent passage through the territorial sea of the United States; or

(ii) Transit through navigable waters of the United States which form a part of an international strait.

4. By adding a new § 164.39 to read as follows:

§ 164.39 Steering gear: tank vessels.

(a) This section applies to each tank vessel of 10,000 gross tons or more, except a public vessel, that—

(1) Is documented under the laws of the United States (U.S. vessel); or

(2) Is a foreign vessels that—

(i) Calls at a port or place subject to the jurisdiction of the United States; or

(ii) Otherwise enters or operates in the navigable waters of the United States, except vessels described in § 164.02.

(b) *Definitions.* (1) "Tank vessel" means a vessel constructed or adapted primarily to carry oil or hazardous materials in bulk in cargo spaces.

(2) "New tank vessel" means a tank vessel—

(i) For which the building contract is placed after June 1, 1979; or

(ii) In the absence of a building contract, the keel of which is laid, or which is at a similar stage of construction after January 1, 1980; or

(iii) The delivery of which is after June 1, 1982; or

(iv) Which has undergone a major conversion, which is contracted for after June 1, 1979, or construction work of which is begun after January 1, 1980, or completed after June 1, 1982.

(3) "Major conversion" means, for the purpose of this paragraph, a conversion of an existing tank vessel which substantially alters the dimensions or carrying capacity of the vessel, or changes the type of vessel, or substantially prolongs its life, or which otherwise so alters the vessel that it is essentially a new tank vessel. A major conversion does not include, however, any alteration or modification made to meet the requirements of this section.

(4) "Public vessel", "oil", "hazardous materials", "foreign vessel", and "existing", as used in this section, have the same meanings provided for these terms in Section 5 of the Port and Tanker Safety Act of 1978 (46 U.S.C. 391a).

(5) "Main steering gear" means the steering gear power units (if any) and their ancillary equipment, and the machinery that can apply enough torque to the rudder stock, tiller, or quadrant to effect movement of the rudder and steer the vessel under normal operating conditions.

(6) "Steering gear power unit" means—

(i) In the case of electric steering gear, an electric motor and its associated electrical equipment such as the motor controller and disconnect switch;

(ii) In the case of electro-hydraulic steering gear, an electric motor and its associated electrical equipment and connected pump; and

(iii) In the case of other hydraulic steering gear, a driving engine and connected pump.

(7) "Remote steering gear control system" means a system by which orders for rudder movements are transmitted from the navigating bridge to the steering gear power unit controls.

(8) "Maximum service speed" means the greatest speed that a vessel is designed to maintain at its deepest seagoing draft.

(c) Each tank vessel must have two remote steering gear control systems, except that separate steering wheels or steering levers are not required.

(d) Each remote steering gear control system required by paragraph (c) of this section must—

(1) Be arranged so that if the system in operation fails, the other system can be brought into immediate operation from a position on the navigating bridge;

(2) If electric, be supplied with power by a circuit that is—

(i) Used for no other purpose; and

(ii) Is connected in the steering gear compartment to the circuit that supplies power to the steering gear power unit controlled by the steering gear control system; and

(3) Have an audible and visual alarm that activates on the navigating bridge upon loss of power to the system.

(e) The visual alarm required by paragraph (d) of this section must be placed in a location on the navigating bridge where it can be readily seen.

(f) Each tank vessel must have—

(1) A means in the steering gear compartment for controlling the main steering gear;

(2) A means in the steering gear compartment to disconnect each remote steering gear control system from its power supply;

(3) A means to communicate between the navigating bridge and the steering gear compartment;

(4) A rudder angle indicator system that is—

(i) Located on the navigating bridge, and

(ii) Independent of each remote steering gear control system; and

(5) A means for indicating in the steering gear compartment the angular position of the rudder.

(g) Each new foreign tank vessel must have a main steering gear that—

(1) Has two or more identical steering gear power units;

(2) To the extent practicable, is arranged so that a failure in its piping or a steering gear power unit will not impair operation of the remaining part of the steering gear; and

(3) Can, while the vessel is operating at maximum service speed in its deepest seagoing draft with one or more power units—

(i) Put the rudder over from 35 degrees on one side of the vessel to 35 degrees on the other side; and

(ii) Put the rudder over from 35 degrees on either side of the vessel to 30 degrees on the other side is not more than 28 seconds.

(h) Each new U.S. tank vessel must have a main steering gear that—

(1) Meets the requirments for a main steering gear in paragraphs (g)(1) and (g)(2) of this section; and

(2) Can, while the vessel is operating at maximum service speed in its deepest seagoing draft with only one power unit, move the rudder in the manner described in paragraphs (g)(3)(i) and (g)(3)(ii) of this section.

(i) Mechanical couplings, including mechanical connections with a remote steering gear control system, on a new tank vessel must be of sound construction and designed for reliable performance.

(j) Each steering gear power unit on a new tank vessel must—

(1) Be designed so that—

(i) When operating at the time of power failure, it will start automatically after power is restored unless it is manually shut off during the power failure; and

(ii) It can be brought into operation from a position on the navigating bridge;

(2) Have an alarm that activates on the navigating bridge upon loss of power to the power unit.

(k) The power supply of at least one steering gear power unit on a new tank vessel, and one remote steering gear control system, must be the vessel's main source of electrical power.

(l) Each new tank vessel must have an alternative power supply that can automatically supply power to a steering gear power unit, its associated remote steering gear control system, and the rudder angle indicator system within 45 seconds after loss of the vessel's main source of electrical power.

(m) The alternative power supply required by paragraph (l) of this section must be—

(1) The emergency source of electrical power on the vessel; or

(2) An independent source of power that—

(i) Is located in the steering gear compartment;

(ii) Is not used for any purpose other than as an alternative power supply; and

(iii) Has sufficient capacity for at least one half hour of continous operation.

(n) A steering gear power unit on a new tank vessel, when supplied by the alternative power supply, must be capable of putting the rudder over from 15 degrees on one side of the vessel to 15 degrees on the other side within 60 seconds when the vessel is operating in its deepest seagoing draft at ½ maximum service speed or 7 knots, whichever is greater.

(o) Each tank vessel must have operating instructions and a block diagram that clearly and simply explain the change-over procedures for the remote steering gear control systems and steering gear power units on the vessel. The instructions and block diagram must be permanently displayed both on the navigating bridge and in the steering gear compartment on the vessel.

(p) No tank vessel may enter or be operated in confined or congested waters described in § 164.16 unless—

(1) When underway in those waters, at least two of the steering gear power units on the vessel are in operation if simultaneous operation of the units is practicable; and

(2) Within one hour before entering those waters the steering wheel or lever on the navigating bridge is operated to determine whether the steering equipment is operating properly under manual control.

(q) The master of a U.S. tank vessel shall conduct an emergency steering drill at least once every 3 months and have the results of the drill logged in the vessel's log book. The drill must include at a minimum the following:

(1) Operation of the main steering gear from within the steering gear compartment.

(2) Operation of the means of communication required by paragraph (f)(3) of this section.

(3) Operation of the alternative power supply if the vessel is so equipped.

(r) No tank vessel may enter or be operated in U.S. navigable waters unless the emergency steering drill described in paragraph (q) of this section has been—

(1) Conducted within three months prior to entry; and

(2) Logged in the vessel's log book.

(s) Compliance with the requirements in paragraphs (c) through (f) of this section is not required until June 1, 1981.

(t) This section is issued under the authority of Section 5 of The Port and Tanker Safety Act of 1978 (Sec. 5, Pub. L. 95-474) (46 U.S.C. 391a)).

(u) These regulations become effective on June 1, 1979.

(Sec. 5, Pub. L. 95-474 (46 U.S.C. 391a); 49 CFR 1.46).

Dated: February 5, 1979.

R. H. SCARBOROUGH,
Vice Admiral, U.S. Coast Guard,
Acting Commandant.

[FR Doc. 79-4513 Filed 2-9-79; 8:45 am]

[4910-14-M]

[46 CFR Parts 30, 32, 34]

[CGD 77-057a]

INERT GAS AND DECK FOAM SYSTEMS

Proposed Rule; Withdrawal of Previous Proposed Rule

AGENCY: Coast Guard, DOT.

ACTION: Proposed rule; withdrawal of previous proposed rule.

SUMMARY: This proposed amendment to the tank vessel regulations requires all new crude oil tankers and product carriers which enter U.S. ports, both foreign and domestic, which are of 20,000 deadweight tons and above to be fitted with an inert gas system. New foreign flag vessels of 20,000 DWT and greater would be required to be fitted with a fixed deck foam system. Additionally, all existing vessels greater than 20,000 DWT for crude carriers and 40,000 DWT for product carriers will have to be fitted with an inert gas system. Dates for implementation are specified in the rule.

DATES: Comments must be received on or before: April 16, 1979.

ADDRESSES: Comments should be submitted to Commandant (G-CMC/81), (CGD 77-057a), U.S. Coast Guard, Room 8117, 400 Seventh Street, S.W., Washington, D.C. 20590. Comments will be made available for examination at the Marine Safety Council (G-CMC/81), Room 8117, Department of Transportation, Nassif Building, 400 Seventh Street, S.W., Washington, D.C. 20590.

FOR FURTHER INFORMATION CONTACT:

Daniel F. Sheehan, Office of Merchant Marine Safety (G-MMT/82), Room 8225, U.S. Coast Guard, Department of Transportation, Nassif Building, 400 Seventh Street, S.W., Washington, D.C. 20590, 202-426-2197.

SUPPLEMENTARY INFORMATION: Interested persons are invited to participate in this proposed rulemaking by submitting written views, data or arguments. Each comment should include the docket number (CGD 77-057a), the name and address of the person submitting the comments, the specific section of the proposal to which each comment is addressed, and give the reasons for the comment. All comments received before the expiration of the comment period will be fully considered before final action is taken on this proposal.

On May 16, 1977, the Coast Guard published a notice (CGD 77-057) requiring the fitting of an Inert Gas System (IGS) on all tankers 20,000 deadweight tons and above. New vessels would be required to comply after the effective date of the rulemaking and existing vessels would have 60 months from that date.

On April 20, 1978, the Coast Guard published a notice (CGD 78-053) outlining the results of the International Conference on Tanker Safety and pollution Prevention (TSPP Conference). In that notice there was specific discussion of the time tables that the Coast Guard proposed for implementation of the results.

A new notice is being published because the Port and Tanker Safety Act of 1978 (Pub. L. 95-474) requires a different approach, particularly with regard to effective dates and the concept of a "new" vessel than that detailed in CGD 77-057, which is hereby withdrawn.

Drafting Information

The principal persons involved in drafting this rule are: Daniel F. Sheehan, Project Manager, Office of Merchant Marine Safety; and Michael N. Mervin, Project Attorney, Office of Chief Counsel.

Background

During the winter of 1976-77, several tanker casualties occurred in or near U.S. waters. These casualties demonstrated the need for a global effort to improve the level of safety of tank vessels and to decrease their pollution potential. The President, in his message to Congress of March 17, 1977, proposed a series of initiatives to be taken both nationally and internationally. These initiatives were broad in scope and included, among several things, a proposal to require an IGS on all tankers of 20,000 deadweight tons and over.

On the basis of the Presidential initiatives, the Coast Guard published proposed rules in the Federal Register of May 16, 1977. The proposed rules contained requirementss for oil tankers of 20,000 deadweight tons or more to have an IGS. New tankers constructed after the effective date of the rulemaking would be required to be fitted with an IGS and those existing tankers which were not currently required by regulations to have an IGS would be given 60 months after the effective date of the rule to comply.

More than 200 comments were received on the May 16, 1977 notice of proposed rulemaking. Most comments were favorable, although some suggested specific proposals which would have deviated from the notice with respect to scope and extent of application. The results of the TSPP Conference, which are described in the following paragraphs, do restrict to some degree the extent and scope of the rulemaking.

At the TSPP Conference, the following was agreed to with respect to fitting of inert gas systems:

All new tankers (crude and product) of 20,000 deadweight tons and above must be fitted with an IGS.

All existing crude carriers of 20,000 deadweight tons and above must be fitted with an IGS. It should be noted that each administration may grant exemptions from this requirement if fitting is deemed unreasonable and impracticable.

All existing product carriers of 40,000 deadweight tons and above must be fitted with an IGS.

All existing tankers of greater than 20,000 deadweight tons that either—

(1) Have fixed high capacity washing machines (60 cubic meters per hour), or

(2) Operate a crude oil washing system, must be fitted with an IGS.

"New vessel" is defined as a vessel that—

(1) Is constructed under a building contract awarded after June 1, 1979;

(2) In the absence of a building contract, has the keel laid or is at a similar stage of construction after January 1, 1980; or

(3) Is delivered after June 1, 1982.

(4) Which has undergone a major conversion, which is contracted for after June 1, 1979, or construction work of which is begun after January 1, 1980, or completed after June 1, 1982.

Existing vessels are vessels which are not new vessels. It should be noted that U.S. flag vessels affected by CGD 74-127, published January 26, 1976 (41 FR 3838) would still have to comply with that rule.

Contained in the results of the conference are resolutions which address the subject of target dates for the coming into force of the SOLAS 1974 protocol. On the basis of the resolution and the stated intention of the Coast Guard, 43 FR 16886 (April 20, 1978), to utilize these dates, the following is a description of the time period of implementation of the IGS requirements:

Existing Crude and Product Carriers of 70,000 deadweight tons and over will be required to be fitted with IGS by June 1, 1981.

Existing Crude Carriers between 20,000 and 70,000 deadweight tons will be required to be fitted with IGS by June 1, 1983.

Existing Product Carriers between 40,000 and 70,000 deadweight tons will be required to be fitted with IGS by June 1, 1983.

The conference also specified fitting a fixed deck foam system on all new tank vessels of 20,000 deadweight tons and above. U.S. flag tank vessels are currently required to be fitted with fixed deck foam systems, therefore, this proposal addresses new foreign flag tank vessels.

This proposal has been reviewed under the Department of Transportation's "Policies and Procedures for Simplification, Analysis and Review of Regulations" (43 FR 9582, March 8, 1978). A Draft Evaluation has been prepared and is included in the public docket.

DISCUSSION OF COMMENTS.

In response to CGD 77-057, there were over two hundred comments concerning either the Presidential Initiatives in general as reflected in the rulemaking or a discussion of specific items contained in that rulemaking. The great majority of commentators did not provide technical comments but rather general support for the approach.

The technical comments can be divided into the following general categories:

Justification for IGS.
Applicability of IGS to Product Carriers.
Retrofitting of IGS in vessels below 100,000 tons deadweight.
Evnironmental and Miscellaneous issues.

Each section will be addressed separately.

JUSTIFICATION FOR IGS

Several commentators felt that there was inadequate justification for the retrofitting of inert gas systems. Points were raised that the number of serious explosions had decreased in the last several years and that this should be attributed to safer operating procedures and the fitting of an IGS on the majority of vessels over 100,000 DWT. It is true that the gross number of explosions has gone down over the last several years.

It is agreed that a large portion of vessels over 100,000 DWT have been fitted with an IGS and that this has had an impact. Serious explosions have occurred on vessels smaller than 100,000 DWT and these have tended to occur in port or in close proximity to port. This coupled with the potential that exists for tank vessel explosions dictated the initial proposals.

The TSPP Conference protocols reflect this in that the base starting point for most vessels is 20,000 DWT. The singular exception is that portion which requires existing product carriers to start at 40,000 DWT. This will be discussed in the next section.

Other commentators felt that the proposal did not go far enough and that the requirement should be extended to all barges and to all tank vessels greater than 1600 gross tons. On balance the scope and extent this proposal is judged adequate by the Coast Guard.

One commentator stated that the initial reason that inert gas systems were required for large vessels was related to the problems associated with high capacity washing machines. It was the opinion of the commentator that this should be addressed in the rulemaking. In accordance with this comment, the rulemaking has been revised to include vessels equipped with high capacity washing machines. These are defined as machines which have a capacity of 60 cubic meters per hour or more.

APPLICABILITY OF INERT GAS SYSTEMS TO PRODUCT CARRIERS

Several commentators felt that inert gas systems should not be required for existing product carriers. Others felt that they should not be required for new product carriers, while others felt that there was no problem in retrofitting product carriers with inert gas systems.

Those objecting to fitting of IGS on product carriers did so on the basis of concern for product contamination.

CONCERN FOR PRODUCT CONTAMINATION

Potential product contamination is a problem that must be considered by a product tanker operator. Products are often formulated with special additives that impart a certain quality to that product. Contamination by water, particulate matter, incompatible chemicals or by another product can serve to diminish product quality. In practice tanker operators exercise a great deal of care to prevent product or cargo contamination.

The potential for product contamination via the IGS is twofold. First, if the IGS is not operating efficiently and the system scrubbers do not remove adequate amounts of sulphur or other particulate matter, these may be carried over to the cargo and subsequently contaminate the cargo. A second possibility exists if the piping system for the inert gas system is inappropriately managed. Inert gas system piping is often common to a number of tanks. Through this system of piping it is possible, through inattention or mismanagement of cargo vapor, to have one cargo contaminate another.

Both of these problems were thoroughly aired at the TSPP Conference and its preparatory sessions. Product carriers have been inerted since 1935 by one U.S. tanker operator and since 1963 by a company in the United Kingdom. Recent tests by a major oil company have not indicated product contamination with properly scrubbed inert gas, a conclusion verified by experience. The problem of vapor line inert gas management is one which will require the same diligence that product tanker operators currently practice. It should be noted that the TSPP Conference recognized that product carriers between 20,000 deadweight tons and 40,000 deadweight tons generally contain a greater number of tanks and associated piping than a crude oil vessels of comparable size. Taking this into account it was decided to restrict retrofit installation of IGS on vessels in this size range because an additional hazard due to inherent system/cargo complexity could be introduced. In summary, the problems of product contamination are controllable if proper attention is given to IGS maintenance and cargo management. The incentives of safety and economics play an equal role.

INSTALLATION OF IGS IN VESSELS BELOW 20,000 DWT

One commentator suggested that an IGS should be required on all barges and all tank vessels greater than 1600 gross registered tons; additionally, that integrated tug barges should be covered by the regulations. Utilizing 20,000 deadweight tons as a lower limit for mandatory fitting of an IGS was based on the assessment that this would include the majority of foreign flag tankers that trade in U.S. ports. Smaller tankers and barges do not have a significant history of fires and explosions and further those that trade in U.S. waters are primarily U.S. flag vessels subject to stringent design, operation, and certification standards.

For the purposes of this rulemaking integrated tug barges which carry grades A, B, C, or D cargo in bulk and have a combined deadweight tonnage above the applicable tonnage base will be treated as tank ships.

It should be pointed out that several commentators felt that an IGS should be required only on vessels of 100,000 deadweight tons and over.

ENVIRONMENTAL ISSUES

Two commentators wrote of possible environmental aspects of inert gas systems. The first comment concerned the production of sulfurous acid when flue gases containing sulfur are scrubbed. Water is used to scrub sulfur and particulate matter from the flue gas and it is subsequently pumped overboard. In some instances, the water contains a mixture of sulfurous acid. This condition has been investigated by several major oil companies and by Det Norske Veritas, a Norwegian classification society. In each instance, measurements were made of the pH of the water at various distances from the underwater outlet. The measurements indicated that the sea water safely neutralized the acid mixture without apparent ill effects. Further, particulate matter in flue gas enters the water after stack gases cool. The scrubbing process has the same end effect.

The second issue raised was whether or not the fitting of an IGS increased hydrocarbon emission into the atmosphere. The question contained no boundary conditions with respect to what part of the ships operational cycle the comment applied to. As a result an examination of a vessel normal operating cycle of-Loading-Loaded voyage-discharge of cargo-Ballasting-Ballast Voyage-was examined.

Inert gas systems, by virtue of functional requirements, provide a system where cargo tanks are not normally open to the atmosphere. This is done to maintain a proper inert gas mixture in the tanks. Discharge of hydrocarbon vapors into the atmosphere in a vessel equipped with an IGS would occur when the vessel ballasted, during any tank breathing through the Pressure/Vacuum Valves due to atmospheric changes, and when the vessel was being loaded. A vessel not equipped with an IGS would also release hydrocarbons into the atmosphere under these circumstances. On this basis vessels equipped with IGS should not increase hydrocarbon emissions into the atmosphere.

EQUIVALENCE

SOLAS 74 and the 1978 Protocol to the 1974 Safety Life at Sea Convention permit alternative systems for the protection of cargo tanks as long as certain principles are met. When the Coast Guard promulgated rules and regulations to make Regulation 60 of Chapter II-2 of SOLAS 74 mandatory for U.S.-flag vessels it was considered unnecessary to develop specific guidelines to permit alternatives. The general equivalency clause in the base regulation (46 CFR Subchapter D) permits "equivalent systems" if an equivalent degree of safety is maintained. This approach permits sufficient latitude with appropriate safeguards.

EXEMPTIONS

The 1978 Protocol to the 1974 Safety of Life at Sea Conference and the Port and Tanker Safety Act of 1978 permits the Coast Guard to exempt the fitting of an IGS on existing crude oil carriers between 20,000 DWT and 40,000 DWT if fitting of such a system is deemed unreasonable and impractical. Petitions will be scrutinized carefully to ensure that the stringent criteria for obtaining an exemption are satisfied. The existence of independent inert gas generating systems weakens the argument, for example, that onboard boiler capacity is insufficient to provide inert gas.

The Port and Tanker Safety Act of 1978 provides that where a deck foam system or an IGS would be incompatible with the cargo carried, that the vessel owner may request an exemption from the specific requirement as long as no alternative protection is provided. Deck foam systems do not present a problem with regard to this, in that they are utilized during emergency conditions when the cargo is on fire and cargo contamination is not the primary concern. Of course, foam would not be required on a vessel carrying only cargo which reacts violently with the water in the foam.

The effectiveness of deck foam systems can be affected by the type of cargo carried. Specifically, polar solvents destroy regular foams. If a cargo is a polar solvent hydrocarbon, a polar solvent foam must be used if firefighting effectiveness is to be achieved. This is taken into account during the design phase of the vessel and is not judged to be a problem.

Certain products may prove to be incompatible with shipboard produced inert gas. The Port and Tanker Safety Act provides that a ship owner may request an exemption from the requirement for an IGS on a particular cargo as long as an alternative arrangement is provided that is accepted by the Commandant. Owners may make application in accordance with the provisions detailed in the regulations. These applications will be reviewed on a case-by-case basis. The owner must provide laboratory proof that the cargo is indeed incompatible with good quality inert gas.

Accordingly, the Coast Guard proposes the following amendments to Title 46, Code of Federal Regulations:

PART 30—GENERAL PROVISIONS

1. By adding a new § 30.01-5(e)(2) as follows:

§ 30.01-5 Application of regulations—TB/ALL.

* * * * * * *

(e) * * *

(2) A foreign flag vessel, except a public vessel, which operates on or enters the navigable waters of the United States, or which transfers oil in any port or place subject to the jurisdiction of the United States, must comply with the provisions of Subparts 32.53 and 34.05 of this chapter, as applicable.

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PART 32—SPECIAL EQUIPMENT, MACHINERY, AND HULL REQUIREMENTS

2. By revising § 32.53-1 to read as follows:

§ 32.53-1 Application—T/ALL.

(a) Except as provided in paragraph (b) of this section, this subpart applies to:

(1) A U.S. crude oil tanker or product carrier of 100,000 DWT tons (metric) or more or combination carrier of 50,000 DWT tons (metric) or more, that has a keel laying date on or after January 1, 1975.

(2) A new (as defined in 46 U.S.C. 391a(2)) crude oil tanker or product carrier, or foreign flag crude oil tanker or product carrier of 20,000 DWT tons or more entering the navigable waters of the U.S.

(3) A crude oil tanker that is equipped with a cargo tank cleaning system that uses crude oil washing.

(4) An existing product carrier of 20,000 deadweight tons (metric) or more that has tank washing machines with a capacity of more than 60 cubic meters per hour after May 31, 1983.

(5) Any other U.S. or foreign flag—

(i) Crude oil tanker or product carrier of 70,000 deadweight tons (metric) and over after May 31, 1981;

(ii) Crude oil tanker between 20,000 and 70,000 deadweight tons (metric) after May 31, 1983;

(iii) Product carrier between 40,000 and 70,000 deadweight tons (metric) after May 31, 1983.

(b) This subpart does not apply to vessels designed to carry only—

(1) Liquefied gas cargo; or

(2) Grade E cargo that is carried at a temperature lower than 50°C below its flash point.

3. Adding a new § 32.53 as follows:

§ 32.53-3 Exemptions.

(a) The Chief, Office of Merchant Marine Safety grants exemptions for crude oil tankers of less than 40,000 deadweight tons not fitted with high capacity tank washing machines, if the vessel's owner can show that compliance would be unreasonable and impracticable due to the vessel's design characteristics.

(b) Requests for exemptions must be submitted in writing to:

Commandant (G-MMT/82), U.S. Coast Guard, Washington, D.C. 20590.

(c) Each request must be supported by documentation showing that—

(1) The system would be detrimental to the safe operation of the vessel;

(2) It is physically impracticable to install the system; or

(3) Adequate maintenance of the system would be impossible.

(d) The vessel's owner may request a conference. The exemption request file will be available for use in the conference and additional arguments or evidence in any form may be presented. The conference will be recorded. The presiding officer summarizes the material presented at the conference and submits written recommendations to the Chief, Office of Merchant Marine Safety.

(e) The Chief, Office of Merchant Marine Safety reviews the exemption request file and decides whether to grant or deny the exemption. The decision shall include an explanation of the basis on which the exemption is granted or denied, and constitutes final agency action.

PART 34—FIREFIGHTING EQUIPMENT

4. By adding a new sentence to § 34.05-5(a)(2) as follows:

§ 34.05-5 Fire-extinguishing systems—T/ALL.

* * * * *

(a) * * *

(2) * * * new foreign flag tankers of 20,000 DWT and over as defined in subsection (2) of 46 U.S.C. 391a must be fitted with a fixed deck foam system complying with Regulation 61, Chapter II-2 of SOLAS 1974.

* * * * *

5. By adding a new § 34.20-1(c) as follows:

§ 34.20-1 Application—T/ALL.

* * * * *

(c) Foreign flag crude oil tankers and product carriers required to have fixed deck foam systems by this subpart must have systems that are designed and installed in accordance with Regulation 61 of Chapter II-2 of SOLAS 1974. (Senate Document, 57-1180, GPO, Washington, 1976; "Message from the President of the United States transmitting, the International Convention for the Safety of Life at Sea, 1974, Done at LONDON, November 1, 1974").

(46 U.S.C. 391a; 49 CFR 1.46(n)(4))

Dated: February 5, 1979.

R. H. SCARBOROUGH,
Vice Admiral, U.S. Coast Guard,
Acting Commandant.

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